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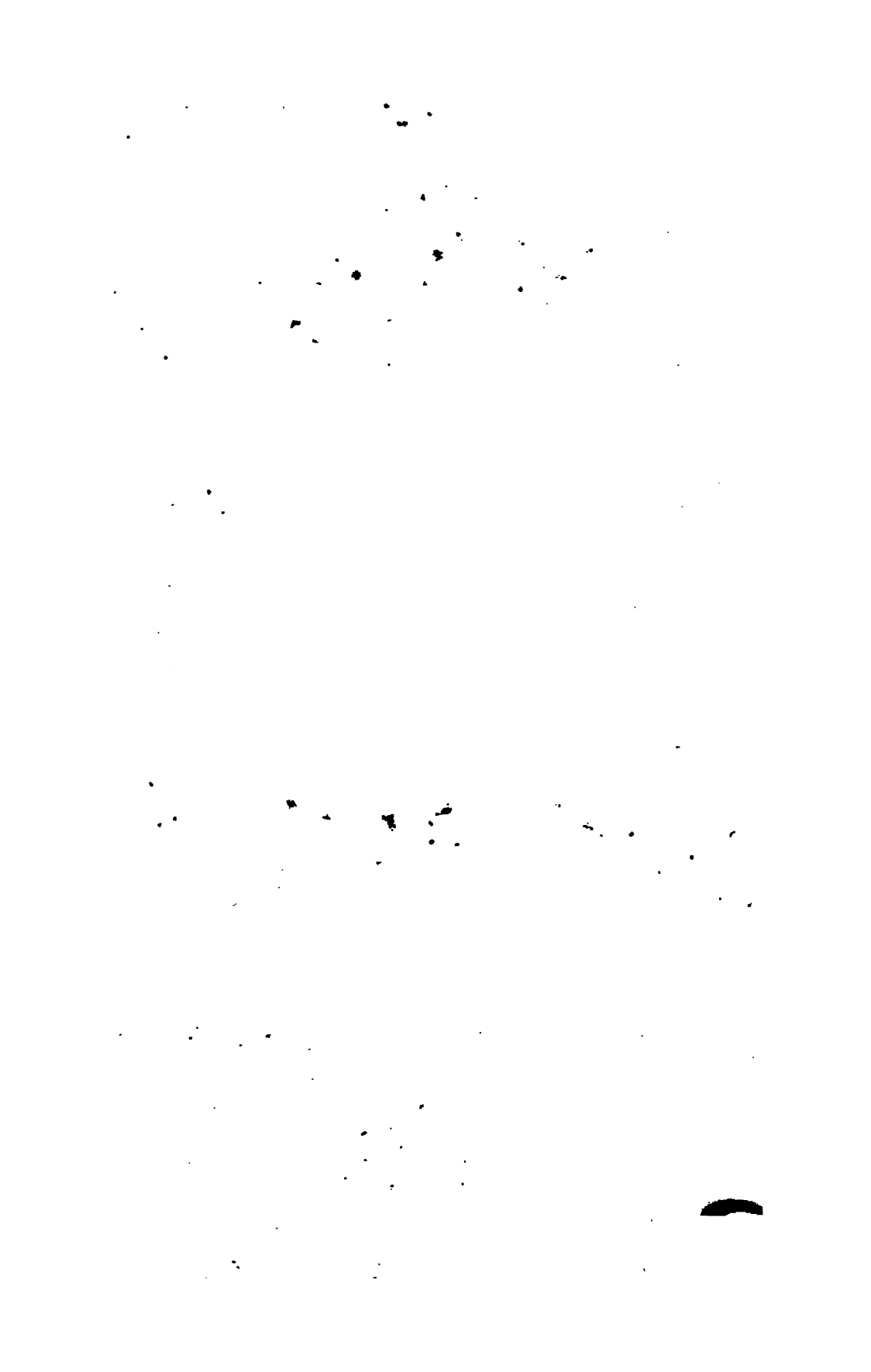
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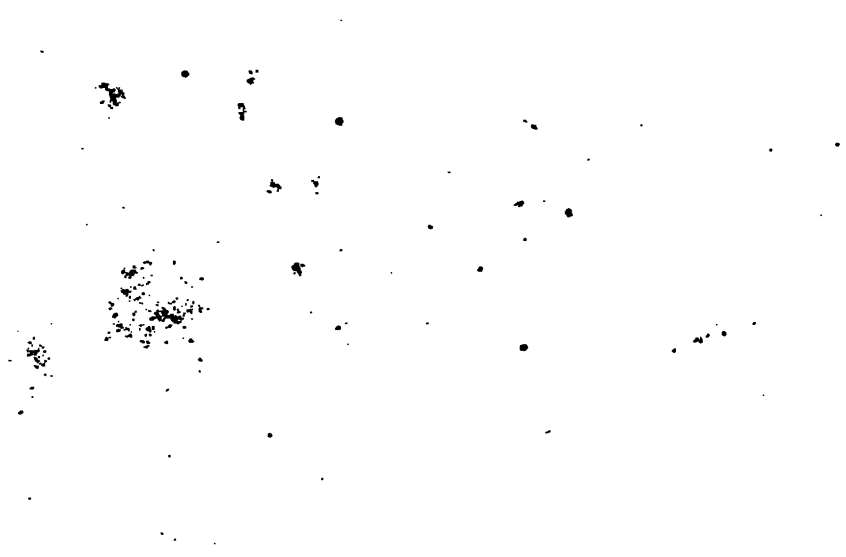














DIVISION II. of Treatise on Associations for Provident Investment.

INDUSTRIAL
INVESTMENT AND EMIGRATION,

BEING A

TREATISE

ON

BENEFIT BUILDING SOCIETIES AND TONTINES,

AND ON

The General Principles of Associations

FOR

LAND INVESTMENT AND COLONIZATION,

WITH SOME

New Theorems in the Doctrine of Compound Interest.

BY

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PART II.

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PRELIMINARY REMARKS.

I. IN the First Edition of this work, which was published in the year 1847, we undertook, mainly, to examine the characteristics of Benefit Building Societies, which were, then, all established on the *Terminating* System, and endeavoured, while pointing out and classifying errors of practice and theory into which the majority had fallen, to lay down principles which might serve as a guide to the correct formation of future societies, and as the basis of some consistency in their subsequent operations. We desired also to urge, upon the Managers and Directors of many that were already in existence, the necessity of turning their attention to the errors described, and of taking such measures as might be calculated to remedy the evil, by introducing judicious alterations into their rules and rates of subscription, or by making such other improvements as would be likely to avert from the societies confided to their care the disastrous termination, which they could not otherwise avoid. We recommended, also, the new system, we had devised, of associations on the principle of *Permanent* existence.

It is gratifying to observe, that this effort to raise the standing of a class of institutions so eminently philanthropic has not been wholly unsuccessful. A great many new associations have been formed since 1847, upon sound and equitable principles; while the managers of others, of some years' standing, have manifested considerable readiness to attend to the suggestions offered to them, and have sought

to improve the defective portions of the constitution of their respective societies.

They have seen that it is better to meet the difficulty, whilst the effects of erroneous systems are still young, and before the mischief produced has become insurmountable; and it is no slight justification for praise, that, on being called together and informed by their Managers of the impracticability of their fulfilling, as the associations were then constituted, the original letter of promise, the members, in most cases, have consented to steps being taken for the introduction of sound principles, although their previous expectations were thus disappointed.

A great number of Terminating Societies have, consequently, been converted into Permanent associations; and rules and tables have been adopted, by which all previously existing and subsequent members are placed on the same footing as if the new clauses had been in force from the beginning. The legal impediments, which borrowers might have thrown in the way of improvement, have been obviated by due care having been taken that the conversion should proceed in so impartial a manner, that neither their just interests should be disregarded, nor their cause favoured to the disadvantage of the general body.

This was all the more necessary, as several societies, that have been converted without proper precaution in this respect, have become involved in litigation, with its consequent endless expenses, which might have been easily avoided if the requisite conditions had been attended to at the time of the conversion.

II. Thus far, therefore, the object aimed at by us has been attained; and it would not have been necessary to make much addition to the previous editions of this work, were it not that a strong tendency in the public mind, towards the formation of other kinds of Industrial Associations, has become more and more manifest; and Benefit Building Societies, under the

name of *Freehold Land Societies, have been applied to the attainment of new objects, such as the extension of the Elective Franchise, &c., which are totally different from that for which they were originally designed, and were not contemplated in the Act of Parliament relating to their government.

III. As, however, it is desirable that the new features thus introduced, as well as those which characterize other similar societies, should be guarded from the defects which have so disfigured their predecessors, we have traced, in additional pages, the general outlines of some of the chief varieties of the new institutions, under the form of supplementary chapters to the more detailed account contained in the first part of this Division of the Treatise. We have, also, endeavoured to explain the advantages of *Tontine associations*, and the excellent application that might be made of Life Assurance, with the systems of Fidelity and Loan Guarantee. Chapters have, further, been added in explanation of the principles upon which Benefit Societies might be formed, so as to assist in the high purposes of systematic Emigration and Colonization.

IV. To bring the Art of Colonization within the comprehension of the industrious classes, we believe it is necessary to interest their minds and pecuniary ambition in the subject. The control and advocacy of the movement must be committed to their diligence and sympathy. It is not by the reserved and distant-mannered representatives of a great company, that their co-operation in systematic colonization will ever be obtained, or the Art be developed to perfection; but by the Super-association—if we may be allowed the term—of a series of industrial associations united for the furtherance of the same popular object.

* [See Division III., or, *Treatise on the Enfranchisement and Improvement of Copyhold, Church, and Life Leasehold Property*, for further developments of the principle of Land Transfer and Registration, and for a set of *Rules* suited for a *Freehold Land Society*.]


V. The plan that, in the last chapter of Part II., will be found described for the carrying out our idea of Benefit Emigration and Colonization Societies, may be, perhaps, in some points, susceptible of advantageous modification or improvement; but in the absence, as yet, of those facilities that may be properly accorded by the legislature, either to the central company recommended by us, or to the Commission, which is the agent of the Government, we can desire only that our system should be accepted by our readers in the light of a first attempt to adapt, for practical operation, the elements of a mighty scheme.

On the locality to be selected, as the basis of any colony, we have expressed no opinion, since that has not formed part of the object of this work. Much, nevertheless, might be said upon the question, if into consideration be taken the relative distances of the colonists' future habitations from this kingdom, and the greater or less diminution which must arise in the available means of their support left unexpended at their arrival. The difference in expense of maintenance during passage to a colonist, or to the country that sends him out, varies materially according to whether the rendezvous of emigration be the British provinces of North America, which, at but 2,500 miles' distance, can be reached in ordinary sailing vessels in some 30 days, or the Australian colonies, that require, by the speediest method of transit upwards of 60 days to arrive at the end of a journey of 14,000 miles. On a large body of emigrants the effect of such a difference in expense would be of essential importance, and, to balance it the land to be purchased should be at a much lower price, which is the reverse of the actual fact at present.—(*See note to page 230.*)

The broad principles of the Art would, in any case, be the same: to draw closer the ties between the colonies and the mother country; to reproduce England on the other side of the great oceans; to create for her superabundant population

institutions, feelings, and a state of beneficial civilization, as near akin to that of this country as possible; and to induce the parent to promote her own interest by watching after the future welfare and by strengthening the hands of her children; so that, through discontent and indignation at neglect, they may never be led even to consider the possible advantages of Separation.

VI. Before entering into the specialities of the Treatise, we would detain the reader's attention, for a few moments, on the legal constitution of associations, contemplated for the purpose of fostering a provident spirit among the industrious classes, whether it be in the investment of their savings, or in the effecting of various objects rendered desirable by the necessities of their situation. According to the present laws, unless by a special Act of Parliament or Royal Charter, a legal existence can only be given to them by registration under the Friendly or Benefit Building Societies Acts, or under the recent Act of 1856, (19 & 20 Vict. cap. 27) for the regulation of Joint Stock Companies, whereby that of 1844 (7 & 8 Vict. cap. 110) is repealed. The new Act was passed to meet the instances which used to occur, where admirable institutions, from not being exactly within the definition of the former privileged Acts, had either to be abandoned or enrolled under that of a Joint Stock Company, and thus entail responsibility, without limit, upon the promoters and others, who furnished, under the name of shareholders, the working capital. By the new Act, Companies may be formed either with or without limited liability to the shareholders, and very little expense is entailed in the registration. [See Division VI. (of the work of which this is the 2nd Division) on Industrial Partnership Societies under the new Act.] It is to be hoped that the facilities granted by the improved law will afford a great impetus to the institution of superior trading companies, under the management, and with the aid of that class of prudent people, not mere speculators, who



have hitherto been deterred from entering into public enterprises, through the danger, in case of failure, of the total ruin of themselves and of those members who may happen to be possessed of property. The industrious classes used formerly to see plans set on foot, with which they would readily associate, were it not that, by so doing, they created a Joint Stock Company with its indefinite responsibility. Through this, too frequently, the best combinations were left in the hands of reckless speculators, whose unlimited liability was of no value.

Among the motives for the recent change in the law, were the opinions expressed by the Parliamentary Committee, who referred to the rapid increase in population and in wealth of the middle and industrious classes within the last half century, and who contended that the great change in the social position of multitudes, from the growth of large towns and crowded districts, renders it more than ever necessary that corresponding alterations in the law should take place, both to improve their condition and contentment, and to give additional facilities to investments of the capital which their industry and enterprise is constantly augmenting; and "that if such measures were carried into effect, a stimulus would be given to the industry of the country, likely to cause additional employment and contentment, without injury to any class, and with increased security to the welfare of all."

VII. We should mention, perhaps, that an Act (15 & 16 Vict. cap. 31, called the "Industrial and Provident Societies' Act") was passed in 1852, ostensibly with the object of facilitating Industrial Trade Societies, but it has become a dead letter from its birth, through the absurd restrictions it contains as to:—

- 1st. The amount of interest a Member may have in the Society.
- 2nd. The mode in which the profits are to be applied, and
- 3rd. The condition that his liability should be *unlimited*.


A variety of errors and oversights also disfigure the Act, which it has been attempted partially to remove by subsequent clumsy enactments in 1854 and 1856.

The new Joint Stock Company's Act of 1856 is, however, infinitely preferable to all the above industrial Acts.

VIII. Yet all the contemplated improvements in industrial associations will be rendered nugatory, unless some provision is introduced to secure thorough respectability and good faith in their management. The recent defalcations in Savings' Banks, to such an extent as to require grants of money from Parliament, for the relief of the subscribers, from utter loss of their savings, and the reckless promises of so many of the Joint Stock Companies, Friendly Societies, and Loan Companies, made to induce business, cannot fail to produce conviction of the urgency of some public system of Auditing accounts, whereby the interest of the public at large may be protected. Even the few investigations hitherto made by Public auditors, deputed for that purpose to various institutions, have evinced the efficiency of some such plan of inspection. It stands to reason, that errors in the principles by which the form of the accounts is to be guided, or unjustifiable measures in the management of the concern, are only likely to be obviated by the check supplied through an independent and impartial audit, by which not only the Account books, but the Minute books of the Directors and the Letter book of the Secretary are examined.

IX. The power of Association, which, in the present day, is becoming so well understood, is applicable, of course, to numerous other purposes besides those discussed in this Division of the Treatise; and we have endeavoured, in the other Divisions, to explain the principles upon which other associations should be established or conducted.

The arguments, adduced in support of our views respecting the institutions specially examined in this part, are, however, applicable to any other, in which it is desired to settle upon



a sure basis the relative position of the members. The truth of the following remarks of the eminent philosopher, Rossi, is now recognized.

“L'association est un instrument, une arme de la plus haute puissance.” . . . “Le progrès social ne peut consister à dissoudre toute association, mais à substituer aux associations forcées, oppressives, des temps passés, des associations volontaires et équitables.” . . . “Tout peuple, chez lequel peut se réaliser cette haute combinaison de la puissance individuelle avec le principe d'association, est entré définitivement dans la carrière de la *Civilisation Progressive*.” *

But, in our admiration of the principle in question, through which much benefit might be derived by the working classes, from their co-operation in trades or manufactures, and the maximum of advantage might be secured from the reproductive use of their *faculties*, just as in the material investment of their *monetary property*, we would not desire that, in carrying out the association of individuals, the subdivision of labour, and consequent speciality of employment, should be carried to such an extent as to narrow the intellectual faculties of any man to a single operation. With Adam Smith, we feel “that the understandings of the greater part of men are necessarily formed by their ordinary employment; that dexterity at a particular trade seems too often to be acquired at the expense of intellectual and social virtues; that the uniformity of stationary life tends to render them incapable of exerting their strength with vigour and perseverance in any other employments than that to which they have been used.”

X. We commend to the attention of our readers one application of which the Joint Stock Companies Act of 1856 is susceptible, namely:

The formation of “Credit Foncier” or Land Credit Asso-

ciations on the principles that have been found so beneficial in Prussia, Poland, Bavaria, Hanover, and many of the smaller German States; in Switzerland and Belgium, and which more recently (in 1852) were introduced into France by the Emperor, then president of the Republic.

Their object is: firstly, to mobilize the soil, so as to give it a transferable species of Credit which can be used and transferred like a bill of exchange; and secondly, to facilitate the liquidation of Mortgages on land by gradual instalments. The reader, who is interested in the subject, should peruse the Memoire (1848) of M. Wolowski on the organization of the Credit Foncier; and the Manuals of M. Le Hir (1852) and M. Emile Berés (1853), which contain much valuable information on the subject of Land Credit Banks. The system of the Credit Foncier of France, which we personally examined in 1853, does not seem yet, however, to have met with the success it deserves, through the opposition of the provincial notaries, whose profits in conducting advances on land it would have tended to diminish. The Report of M. Josseau to M. Dumas, Minister of Agriculture (1851), should be consulted; as also M. Royer's work on the Institutions for Land Credit in Germany, and the recent admirable suggestions of Mr. Vincent Scully, Q.C., M.P., for a new Land System.

Mr. Scully remarks that, "It is a most idle illusion to imagine that a sound measure to facilitate Transfer of Land can ever tend to its undue subdivision, to give an improper impulse to democracy, or to affect injuriously the aristocratic element of these kingdoms. Such a measure would produce the very opposite results. Should the occasion arise, it will be easy to demonstrate that the free Sale and Purchase of Land can lead to no over-population of a country, or *morcellement* of its farms. It would have a highly preservative tendency, and would stabilitate a territorial proprietary, whilst admitting all industrious classes into either a present or a prospective participation in the ownership of Land. In the words of the

Chief Secretary for Ireland—"Its operation would be to increase the value of land to the Seller, and to give security to the Purchaser. It would also have the effect of enabling persons to buy small portions of land, and, by that means, of steadying the minds of the public and encouraging them to make investments at home."

It has been further argued by Mr. Scully that a system of *Land Debentures* should be created, of which there are *already several instances in force in England and Ireland—one of the most remarkable being that conferred by the Legislature on the *Lands Improvement Company*, through a special Act, the 16 & 17 *Vict. cap. 154*, enabling it to charge land with transferable Debentures, in order that the owners may make improvements tending to develop the resources of their lands. It would be impossible to overrate the benefit, that would arise to small capitalists from the existence of a general system of †*Land Debentures*, to be registered in such a manner as would admit of legal rights being secured without tedious or expensive preliminaries.

* [For Example:—In ENGLAND; Land Drainage Company's Act, 12, 13 *Vict. c. xci.*; Copyhold Enfranchisement Act, 15, 16 *Vict. c. 51*; Land Improvement Company's Act, 16, 17 *Vict. c. cliv.*—IRELAND; Land Drainage Act, 5, 6 *Vict. c. 89. s. 100*; Farmer's Estate Society's Act, 11, 12 *Vict. c. cliii.*; 14, 15 *Vict. c. cxliii.*; Sir J. Romilly's Securities for Advances Bill of 1850.—CHANNEL ISLANDS; See Duncan's Guernsey, p. 286; Berry's Guernsey, p. 177; Plee's Jersey, p. 251; Le Cras's Laws of Jersey, p. 324; V. Scully on the Channel Islands, p. 64.—EUROPE; See "Land Credit Companies of Prussia," by W. Pollard Urquhart, M.P (1853); Jacob's Tour of Poland (1826); and as to Belgium, Hamburgh, Frankfort, and parts of Germany, see Evidence of Mr. James Stewart and Mr. John Stuart Mill, before the Commons Savings' Committee of 1850.]

† [AGRICULTURAL STATISTICS (ENGLAND).—A blue-book, lately published, contains the reports of the Poor Law Inspectors on agricultural statistics in England in 1854, presented to Parliament. From a general summary prefixed to the local reports, it appears that the gross estimated

XI. The Appendix to this Division will be found to contain various interesting investigations into the operations of societies dealing with compound interest and life contingencies, and more particularly suggestions for the extension of Savings Banks, &c., by the* deposit system, which we have devised, of contributions based upon *two simultaneous* rates of interest, one for Accumulation, and the other for Withdrawals.

XII. In conclusion, we would impress upon our readers, that the establishment of such associations and companies, as are

totals in the counties of England and Wales were as follows—*viz.*, number of statute acres, 37,324,915, of which the following numbers were under tillage for various grains—*viz.*, 3,807,846 acres of wheat, 2,667,776 acres of barley, 1,302,782 of oats, 73,731 of rye, 698,188 of beans and peas, 218,551 of vetches, 2,267,200 of turnips, 177,263 of mangold, 12,638 of carrots, 192,287 of potatoes, 10,156 of flax, 18,976 of hops, 1,079 of osiers, 97,334 of other crops, and 895,969 bare fallow land, making a grand total, under the agricultural division, of 12,441,776 acres. The grand total number of acres under grass, amounted to 15,212,203, including 8,174,946 acres of permanent pasture land, and 2,224,862 acres of sheep walks and downs. The number of acres in houses, gardens, roads, &c., was 976,197; the number of acres in waste attached to farms, 786,658; the number of acres in wood and plantations, 1,697,362; the number of acres in commons belonging to parishes, 1,937,164; the number of acres in holdings of less than two acres, 459,447; and the number of acres not accounted for, 3,814,108. The stock of all the counties in England and Wales in 1854 included 1,050,931 horses, 258,079 colts, 1,376,730 milch cows, 707,192 calves, 1,339,279 other cattle, including working oxen, 244,106 tups, 7,299,915 ewes, 6,987,982 lambs, 4,159,085 other sheep, and 2,363,724 swine. It should be explained that returns have been received from eleven counties only, those for the remaining counties being simply estimated. In England, 61,496 acres, 3 roods, and 23 perches are occupied by railways; while in Wales, 3,550 acres and 23 perches are occupied by railways.]

* [See Division I, for a set of Deposit Tables, calculated by the formulæ above referred to, for the use of Savings Banks and Industrial Societies.]

considered in this Treatise, can only lead to satisfactory results, and avoid reacting, by failure, as a check upon the continuous energy and forethought of the industrious classes, through the managers constantly bearing in mind, that, even when the broad principles of a system are definitely settled, the details are far from being unimportant; that nothing is more easy than to ruin the most carefully constructed plan by committing apparently trifling errors in its execution; that the inconsistencies and objections to many of the existing associations, which we have examined, are easy to obviate, as their prevention lies entirely within the province of the parties who are charged with the management of the society's operations; and that our object is not only to expose errors, but to direct attention to the principles of the plans themselves, as containing materials for improvement, which may be made beneficial to the community at large. With the lamented economist, M. Frederic Bastiat, we would say that, " *Aux douleurs de la concurrence l'humanité apprend, chaque jour, á opposer deux puissants remèdes: la Prevoyance, fruit de l'experience et des lumieres, et l'Association, qui est la Prevoyance Organisée."

• *Harmonies Economiques.*

A TREATISE ON BENEFIT BUILDING SOCIETIES,
AND ON THE
GENERAL PRINCIPLES OF ASSOCIATIONS
FOR
LAND INVESTMENT AND EMIGRATION.

PART I.

ON BENEFIT BUILDING SOCIETIES.

'The subject of this work has presented difficulties of a complicated character, from the various phases under which the peculiar defects of individual societies appear. The task has, however, been lightened by the reflection, that, although it cannot be expected that this effort, to place them upon a more rational and secure footing, will meet with the success of wholly obviating errors for the future, yet a most important end will at once be obtained, if the attention of the Patrons, Trustees, Directors and other officers of many of these institutions, be awakened to the sense of the grave moral responsibility incurred by them, in allowing their names to be connected with schemes, which, while professing to benefit, do but cause injury to those, for whose good they were designed,—to individuals not of equal information and position with themselves, but from a class remarkable for the simple faith with which they believe in any statement, that is sanctioned by the countenance of their superiors.'—
[Extract from preface to first edition.]

CHAPTER I.

INTRODUCTION.

ART. 1.—AMONG the remarkable features of the present age, Benefit Building Societies occupy a very leading position. They have increased in such numbers during the last few years, not only in the metropolis, but in every part of the kingdom, that it has become a matter interesting to all to understand, correctly, their object and the true principles on which they ought to be founded. This information is the more desirable, as large sums of money are already subscribed

to these associations, and they seem likely in a few years to engage in their operations a considerable portion of the investing capital of this country. But, although they have received extensive support from the industrious classes, it is painful to find, that very few of the existing societies are guided by principles, which can, either in theory or practice, justify the hope of their terminating with the advantageous results held out as an inducement to parties to become members.

That the principles of Building Societies should be erroneous, and yet that their popularity should be so widely extended, may be ascribed to two causes. As yet, but few persons of sound mathematical knowledge or experience in calculations have turned their attention to the subject, and the societies hitherto formed have been deprived of that basis of science and just reasoning, which alone can ensure the prosperity of this or any similar kind of speculation. On the other hand, the members of these associations have, in general, been led to expect from them an unreasonable degree of benefit—a false impression, which has been shared even by persons of the more educated orders.

2.—A Benefit Building Society, when properly constituted, is a species of joint stock association, the members of which subscribe periodically, and in proportion to the number of shares they hold, different sums into one common fund, which thus becomes large enough to be advantageously employed by being lent out at interest to such of the members as desire advances; and the interest, as soon as it is received, making fresh capital, is lent out again and again, so as to be continually reproductive. Large sums may be raised in this manner; for, to take an example, if 1000 shares were subscribed for at 10*s.* per month per share, the amount in one year would be £6000, which, month by month as received, might be advanced to any members, who should wish to become borrowers. The payments of BORROWERS are so calculated as to enable them to repay, by equal monthly or

less frequent instalments, within a specified period, the principal of the sum borrowed and whatever interest may be due upon it throughout the duration of the loan. The other members who have not borrowed, and who are generally called **INVESTERS**, receive, at the end of a given number of years, a large sum, which is equivalent to the amount of their subscriptions with compound interest accumulated upon them.

The idea of a society upon this principle, correctly formed and afterwards properly managed, is of the most admirable kind. For on the one hand, it holds out inducements to industrious individuals to put by periodically from their incomes small or large sums, which are invested for them by the society, and, at the end of a certain time, are repaid to them in the shape of a large accumulation, without their having themselves the trouble of seeking for suitable investments; while on the other hand, the money subscribed, being advanced to some of the members, enables them to purchase houses, or similar property, and to repay the loan by small periodical instalments, extended over a number of years.

3.—As regards the purchasing of house property, Benefit Building Societies must be deemed peculiarly beneficial. We have only to consider how large a portion of a man's income is usually absorbed by the payment of rent, especially among the lower classes, who pay for their tenancy much more heavily than their richer neighbours, considering the relative value of the houses which they occupy. It has been justly said, that "Every one knows something of the ultimate cost of hiring furniture for their houses or lodgings; they know that it is much more advantageous to the hirer of furniture to buy the articles outright than to pay continually for their use; and, therefore, most prudent people in the middle and humble walks of life, make it a rule to purchase their own furniture and other articles of domestic comfort and convenience. They know that the price paid for long hiring is at least equal to the original price of the article hired. And

yet how many thousands of persons there are in the Metropolis only, who deem it an unwise extravagance not to purchase their articles of household furniture, and yet are quite content to hire their homes. What numbers occupy hired houses or apartments, to deposit their own furniture in."

4.—It is, however, only by means of these societies that persons, who are not possessed of capital and who merely receive their incomes periodically, can ever become possessors of a house ; and this they are enabled to do only from the practical fact, that the annual repayments, required by a society upon a loan, do not much exceed the rent of a house, which could be purchased with the sum borrowed ; so that a man living 10 or 14 years in a house, instead of paying his rent to his landlord and thus losing so much money for ever, pays it with a small addition to a Building Society for a limited number of years, and in consideration of his consent to this arrangement, the society advances him at once the money requisite for the purchase of the property, which thus in the stipulated time, when the loan has been repaid with interest, becomes entirely his own, the money advanced being in the meantime secured by a suitable mortgage.

5.—Such is the simple outline of the plan pursued in the practice of Benefit Building Societies, and if efficient means could be provided for securing correctness in their principles of calculation and a fair and honourable way of carrying out their object, these institutions might undoubtedly be considered as an excellent application of the system of mutual association. A private individual usually finds it impracticable to obtain an advantageous accumulating interest for the smaller sums, which he can spare from his necessities. This arises from the circumstance of his having no means of procuring satisfactory information respecting the adequacy of any security contemplated for his investment, nor is he in the way of hearing of remunerative opportunities, which present themselves from time to time.

An association, however, of provident persons can command all that is wanting to the single member; and, although the trifling contribution of each by itself would be too small to be capable of reproductive investment, yet, when united with others in a large sum, it becomes a proportionate participator and has its representative in the aggregate profits of the general body. Moreover, where there exists a variety of amount of talent and capital, their union for the purposes of carrying out the same design facilitates and renders possible its accomplishment. The efforts of a body of men in pursuit of a good object are generally successful, whether they endeavour to attain for themselves definite and tangible results by the operation of great commercial enterprises, or whether they combine with the provident desire to avert, as far as possible, the pecuniary loss, to which the death of any individual among their number would expose the members of his family. As an application of the former species of association, though in a limited degree and among humble classes, Benefit Building Societies have proved a remarkable illustration of the great advantages conferred by the working of this principle, but they are yet so obscured by defects and errors, as to require the application of many improvements, both in their system and practice, to prevent them from sinking into disrepute.

6.—The first Benefit Building Society, which can be traced, was founded in 1815 under the auspices of the Earl of Selkirk. It was a village club at Kircudbright in Scotland. Other institutions of a similar kind were afterwards established in the same kingdom under the title of ‘Menages,’ and the system was soon adopted in England by societies formed in the neighbourhood of Manchester and Liverpool, and other parts of the North. After the year 1830 they increased so rapidly, that on the 14th of July 1836, a special act (6 and 7 William IV, cap. 32) was passed for their encouragement and protection, in the provisions of which were embodied certain clauses applicable to their conduct, which were included in

the statutes relating to Friendly Societies, passed in the reigns of George III and George IV. As a proof of their numbers it may be stated that up to the 30th September 1850, there had been registered in the united kingdom considerably over 2,000 societies, of which in England alone 169 were added in the first nine months of that year—a proportionate increase having taken place in Scotland and Ireland. Of these societies, there is evidence to shew that about 1,200 are yet in existence, the total income of which is calculated at not less than £2,400,000 a year. In fact, there are two or three whose annual incomes are between £50,000 and £60,000 each.


7.—The Act of Parliament just mentioned was passed in 1836, under the designation of “An Act for the regulation of Benefit Building Societies,” for the express purpose of encouraging the formation of such institutions, by granting them various privileges, among which is the power of charging a higher rate of interest than was formerly allowed; while, to protect their subsequent operations, it was enacted, that each society should be governed by certain rules, to be approved of, and so certified, by a barrister appointed by Government.

When this act was passed, it seems to have been overlooked that societies of this kind would be exposed to more serious danger than ever, when thus encouraged by a special act, if the rates of subscription were to be left unguided by any advice or check furnished by competent authority. This circumstance has been the cause of considerable mischief, inasmuch as by far the greater number of the existing building societies are founded on incorrect principles of payment, and many evince on the part of their originators much ignorance, even of the simplest operations of compound interest. In some instances the statements put forth are very extravagant, and it would not be easy to account for the confidence with which they are too often received, were it not that a species of fascination for this kind of investment seems to possess the minds of the industrious classes; and even persons of superior

position, who would be expected to have more information, have united in giving their sanction to the error, for it has been found that no Benefit Building Society has ever been started, however ridiculous its pretensions, which has not speedily succeeded in drawing together a number of shareholders.

8.—The tone of moderation assumed in many of the prospectuses appears sometimes to proceed from an honest conviction on the part of their authors, and, as such, is but too well fitted to gain the confidence of single-minded persons: it is not unusual to find some impossible project represented as “no speculation—no scheme, by which uncertain results are to be obtained, but a sober, well-tried, and successful mode of associating together a number of persons for the benefit of the whole,” and then, although it is deemed unnecessary to give the grounds upon which their promises are founded, they shelter themselves beneath the mantle of legislative sanction, and adduce the Act of Parliament as being of “itself sufficient evidence of the favourable opinion entertained by Government of their Society.” It cannot be wondered at that statements, advanced in such language as this, and supported by so high an authority, too frequently gain the confidence of the public.

9.—Nor is it thus only that the legitimate object of Building Societies has been perverted. In order to render them popular and attractive, the projectors have also, in many cases, not contented themselves with promising to the poor but industrious man the privilege of becoming the possessor of a house by easy means; but have unhappily infused into him an eager desire to obtain a disproportionate amount of gain in his purchase. Hence it comes to pass, that, instead of his feeling a lively satisfaction, at being able to get possession of his house by the payment to a society of very little more than the amount of his rent during a reasonable number of years, he is taught to believe, that the important advantage he covets can be obtained for him by means and within a period of time, which common sense ought to have suggested as impossible.



Whilst this attraction is held out to the borrowers, a similar sacrifice of principle is made to the investors, or non-borrowers, who are promised large accumulations at the end of a limited number of years, in return for disproportionately small monthly subscriptions. The same prospectus will frequently contain these incompatible statements, and yet the subscribers believe with implicit and blind faith in the virtues of the scheme, into the practicability of which they do not trouble themselves to inquire. They lose sight of the fact, that, in saving a little money they are but providing against misfortunes and the exigencies of life: that facilities for the investment of their savings are only valuable, in so far as they increase their means for that purpose, and that, not for one moment, should they labour under the delusion that, by joining this or that association, their fortunes can be made without trouble. Such hopes cannot receive too strong a check, as they give rise to ideas, which lead the working classes beyond their sphere, and incapacitate them for the exertion necessary to maintain them in it, and thus cannot fail to induce misery and disappointment in the end.

10.—In addition to the discouraging effect produced by the errors introduced into so many existing societies, there are other obstacles to their complete success, that arise from some imperfections in the Act of Parliament relating to them, the discussion of which would be too long in this place. Moreover, from these societies having been, up to a recent period, chiefly dependent on the lower ranks of life, their resources have been too limited to render their operations sufficiently important to attract the attention or secure the assistance of persons of information or talent. In the presence, however, of these objections or difficulties, it may confidently be affirmed, that their introduction into this country has been accompanied by very happy results in promoting habits of economy and prudence among the poorer classes. Much good has been obtained by their enabling so large a number of persons to

become possessors of houses and land, which, on the conclusion of their payments, they occupy free of rent, and can transmit as a little property to their family. This pecuniary interest serves at once to bind them to the soil and to promote a feeling of love and veneration for the national institutions of their country.

11.—Yet it is remarkable that this excellent principle has been completely overlooked by a class of persons, in more easy circumstances, to whose case it would admit of more ready and certain application. There are a vast number of professional men, and others engaged in commercial pursuits, with ample means, who continue for years to pay away large sums in rent, without reflecting, that, by uniting together in the formation of a superior kind of Benefit Building Society, they would be able to realise additional property for their families, with but little extra outlay. Such a society would also offer another channel for temporary investment to many non-commercial persons of the higher classes, who would be willing, as Investors, to lay out, from time to time, comparatively small sums of money at advantageous interest.

12.—Hitherto the money accumulated by these associations has been devoted solely to the purpose of enabling members to become purchasers of houses and land, or similar property; yet, as far as the principle is concerned, there is no reason why it should not be applied to other objects, provided the investment obtained be equally safe. Illustrations of this kind will be given further on (Chapter 8), where will be found remarks on the plan of a Building Society, the shares of which, by the adaptation of a combination of Life and even Fidelity Assurance, can be made payable at the end of a definite number of years, or sooner in case of death; while, at the same time, they may serve as security for the fidelity of the possessor, when holding a situation of trust.

We shall conclude this chapter with a statement of some of the leading examples of the various uses, to which Benefit Building Societies are at present applicable.

- 1st.—*Provisions for Old Age* may be secured, payable at the end of any number of years, by a person joining the society as an investor.
- 2nd.—Houses can be *purchased*, instead of being hired, by an inconsiderable increase of annual outlay.
- 3rd.—Heads of large commercial establishments and ministers of parishes may, by affording encouragement, advice, and protection in the formation of such societies, secure more benefit for their dependents and the humbler members of their charge, than can be obtained by any effort, however extensive, of private charity.
- 4th.—Leaseholders, such as farmers or others, desirous of providing for the *fine* on renewal of their leases (if for terms certain), can do so by joining a society as investors, and subscribing for such number of shares (to be received in full at the required time) as will meet the amount desired. This obviously would be to many an easy mode of providing for what is now often felt to be a difficult and onerous charge.
- 5th.—The Premiums or Fees for placing boys as apprentices or articulated clerks to solicitors, engineers, &c., can be obtained in a similar way.
- 6th.—*Marriage and Family Endowments* of all kinds can be secured.
- 7th.—Benevolent Institutions and Religious Societies can borrow funds for the erection of churches, alms houses, schools, chapels, &c., or for the immediate paying off of any debts from such institutions, and the amount borrowed can subsequently be repaid by charitable contributions periodically collected.

CHAPTER II.

ON THE NATURE OF THE OPERATIONS OF COMPOUND INTEREST.

“ L’Intérêt est le loyer d’un Capital prêté, ou bien, en termes plus exactes, achat des services productifs que peut rendre un Capital.”—*Say, Économie Politique*, Tom. ii, p. 480, Ed. 4^{ème}.

ART. 13.—PREVIOUSLY to describing the theoretical construction of a Benefit Building society, or any other similar association, a few remarks will be necessary respecting the principles of compound interest, on which the rates of subscription are supposed to be based, so that the general reader may be enabled to judge of the manner in which the advantages to be derived from these institutions are attainable, and appreciate the influence, which the practical contingencies, examined in the succeeding sections, may be expected to have on the results produced by a mere theoretical investigation of the subject.

It would be irrelevant to the object of this work, to enter into the doctrine of interest further than may be necessary to elucidate and explain the nature of Benefit Building and other Investment societies ; we shall therefore confine ourselves to a few general outlines, and refer the studious reader, for more extended information, to Treatises specially devoted to the science ; we have treated the subject analytically in the Appendix, and in this chapter have merely collected some of the practical results.

INTEREST OF MONEY.

14.—It is the custom in all civilized countries, that one person borrowing a sum of money from another, should pay him periodically for its use a certain consideration under the name of Interest. This consideration varies in amount according to the nature of the security given for the loan, the state of public monetary affairs, and occasionally other circumstances. In order to simplify commercial transactions and establish a standard of measurement for them, annual rates of interest have been formed, varying from £1 upwards for every £100 borrowed. This interest, although specified nominally as an annual rate, is payable at such regular periods as may be agreed upon, either by annual, half-yearly, or more frequent equal instalments, each periodical payment being, however, always proportional to the annual rate.

The *highest* rate of interest that a lender may legally demand or receive for the use of his money, usually varies with the commercial and political position of the country in which the transaction takes place, and until lately in England was fixed at five per cent. per annum, although special exceptions were made for the investments of building societies and similar institutions. It does not seem clear for what reason the rate of five per cent. was selected as the limit allowed; and it has been a question giving rise to a variety of opinions, whether the existence of any such limit has not been the occasion of more injury to commercial affairs, amidst the fluctuations of public confidence, than it has produced good by the restraint imposed upon usurious practices.

SIMPLE AND COMPOUND INTEREST.

15.—In treating of the advantage derived by investing money, it is important to distinguish between Simple and Compound interest.

If the sums received by the lender from time to time on


account of interest are placed by him in similar investments, as so much new capital, it is obvious that he not only realises interest on the sum originally lent, but also on *its interest*, thus increasing materially the advantage produced by his money, for which he is consequently said to be receiving *compound* interest.

The same would be the result, if the borrower, instead of actually paying the interest when it becomes due, were allowed to increase his debt thereby, with the understanding that the whole should be paid off in one sum at the end of the time for which the loan was made; the borrower undertaking to place his creditor in the same pecuniary position as he would have been in, had the instalments of interest been actually paid periodically and themselves reinvested.

If, however, instead of supposing the interest, which should have been paid from time to time, to be reproductive, the borrower were only bound to pay the sum of the periodic instalments on the original amount lent, without anything additional for their non-payment at the epoch when they became due,—then he is said to be paying only *simple* interest; for example :

Suppose £100 were borrowed for four years at the annual rate of five per cent. simple interest, which is to be paid at the end of the fourth year with the loan, then the amount payable at that time would be £100 and four times £5, or altogether £120.

16.—The way *compound interest* accumulates will be seen by the following example:—Suppose A lends B £1000, for fourteen years, at five per cent. interest, payable annually and at the *end* of each year. At the end of the first year A receives from B £50 for interest, which he reinvests by a further loan to B, or to some other party. The amount altogether thus lent is then £1050. At the end of the second year A receives £52. 10s., as interest at five per cent., which



he again lends out immediately, making his total investment £1102. 10s. At the end of the third year the interest received upon this loan of £1102. 10s. is £55. 2s. 6d., which, being also lent out, causes the total sum invested to be £1157. 12s. 6d., on which, at the end of the fourth year, A again receives interest, and so on, until the end of the period, the advantage derived from these repetitions of investment increasing every year.

In this example we have seen that the lender in three years clears £157. 12s. 6d. in the shape of interest on the £1000 originally lent, which is £7. 12s. 6d. more than he would have obtained by *simple interest*. In the same way if we refer to Table 3, which is formed on the above considerations, it is found that at the end of fourteen years the £1000 would amount to £1979. 18s. of which £979. 18s. arises from compound interest, being £279. 18s. more than at simple interest.

17.—As in the practice of the societies which form the subject of this work, interest is always supposed to be compound and not simple, we will confine ourselves to remarks on the various results appertaining to the realization of the former, premising that whenever the *rate* of interest is mentioned, it always signifies the *yearly* rate, whether it be paid in reality then, or at more frequent intervals.


18.—Respecting tables of interest and the preceding example, it should be observed, that the calculations are only true, supposing the money, which is received yearly, or otherwise, for interest, to be immediately transferred to some investment producing the same rate of interest, and in as frequent instalments as the original investment did. The loss of a day falsifies the calculations, and neglect of this most important consideration is the cause of the frequent discrepancies which are seen between valuations made on theory, and those consistent with the circumstances of actual practice.

19.—In commercial transactions, interest is more frequently due half-yearly than yearly, and sometimes quarterly or monthly, which materially increases the amount that a sum of money will accumulate to at the end of a given time, since the instalments of interest are then susceptible of more frequent investments themselves, as so much new capital bearing interest. One instance will prove this:—Suppose £1000 were lent for one year at five per cent. rate of interest, payable *half-yearly*. At the end of six months the lender receives half a year's interest, or £25. This, if invested immediately, will itself produce, in six months, 12s. 6d. interest, or the lender will, at the end of the year, by his investment of £1000, have made 50l. 12s. 6d., instead of the £50, which he would have received had the interest been only payable yearly.

The greater advantage derived by the receipt of interest in equal instalments, more frequent than once a year, is shewn in Table 4, where are given the actual interests, realised at the end of a year, corresponding to various nominal rates, according as it is paid half-yearly, quarterly, or monthly, or even at shorter intervals of time. When interest is supposed due at the end of every moment of time, it is said to be *momentaneous*, and this hypothesis, to which other rates can be reduced, gives rise to several curious investigations, which are discussed at some length in the Appendix. See also Tables 5 and 6.

20.—In cases where the *amount* of a sum is to be determined for a period of years beyond the limit of the tables which are used, the results given in them may yet serve for the purpose.

Example: suppose the amount of £100 is desired in thirty years at five per cent. compound yearly interest. Ascertain the amount in twenty-five years by Table 6, and then by rule of three determine what the sum produced at the end of twenty-five years will accumulate to in five years more; or



what is the same thing, the amount of £1 in thirty years is equal to the product of the respective amounts in twenty-five and five years. The multiplication is very easy when decimals are used.

Thus in twenty-five years at five per cent. £100 amounts to 338*l.* 12*s.* 8*d.* Again in five years £100 would amount to 127*l.* 12*s.* 6*d.*, therefore in five years 338*l.* 12*s.* 8*d.* will amount to 432*l.* 3*s.* 10*d.*—or the amount of £100 in thirty years is 432*l.* 3*s.* 10*d.*

The General Theorem is :—

The amount of £1, in any given number of years, is equal to the product of the respective amounts of £1 in any two or more periods of years, into which the given number can be separated.

ON DISCOUNT AND PRESENT VALUE.

21.—If a person be entitled to a certain amount at the *end* of a given time, and wish in its stead to take its equivalent value at present, the sum, which he ought to receive, is termed the *present value* of the amount in question, and the difference between the two is called *discount*. The discount will be greater or less according as the sum due is discounted at simple or compound interest. In ordinary mercantile transactions, to avoid the necessity for tables, it is usual to charge a discount, equal to the simple interest on the whole debt, for the time that exists between the present and the day on which it is due. Thus if the amount be £100, and there remain two years before it is due, the discount at five per cent. rate of interest will be £10: for eighteen months it will be 7*l.* 10*s.* 0*d.*, and similarly for other periods. This is sufficiently accurate for the practical purposes of commercial affairs, and in fact is the only way in which the necessity for separate calculations on every occasion can be obviated; but for debts extending over a large number of years, such a method of computing the discount would give a result, which

would be much too large. When money is correctly discounted at a certain rate of compound interest, the *present value* is such a sum as will, by being improved, if invested at once at the same rate, accumulate at the end of the given time to the amount due.

Discount, therefore, being the inverse of interest, we have this fact, corresponding to the one mentioned art. 19, that:—The present value of a sum due at the end of a given time, is less in proportion to the greater frequency of the periods, at which the interest is supposed to be due.

Example: The present value of £1000, due in five years and discounted at the rate of 4 per cent. compound yearly interest, is 821*l.* 18*s.* 6*d.* But if the interest be calculated as due half-yearly it is 820*l.* 7*s.* 0*d.*, and similarly it is less if calculated as due quarterly or monthly.

Tables, which give the amounts to which a present sum will accumulate, will serve inversely to give, by rule of three, the present value of a sum due at the end of a specified number of years.

For if £1 amount at 3 per cent. yearly interest to 1*l.* 3*s.* 2*d.* in five years (see Table 3), then £1 is the present value of 1*l.* 3*s.* 2*d.* due five years hence. Therefore, by rule of three, 17*s.* 3*d.* is the present value of £1 due five years hence.

22.—*The important theorem in Art. 20 holds also for present values.*

23.—A table of present values is worth attention. (See Sec. 2 Appendix.) If two rates of interest be followed down the table, and the *difference* of the present values of £100, at those rates of interest, be measured, it will be seen that there is a period, at which the difference attains a *maximum*. In other words, If one person A obtain a present loan or advance from another person B, in return for which he is to pay him a sum S in a certain number of years; and A, out of the money he has received, lends a smaller sum (through deduct-

ing a higher rate of interest) to a third party C, from whom in repayment he is also to receive a sum S, which will enable A to pay his debt to B: then the immediate profit derived by A will be greatest, if he select the proper term of years for his transaction.

ON ANNUITIES OR PERIODIC PAYMENTS.

24.—Having explained the operations, by which a *single* sum changes its value, under the influence of interest in the course of time, we will proceed to shew, what is the result, when several sums are taken together into consideration. ANNUITY is a term applied to the periodic payment of money at fixed intervals. It is said to be a yearly, half-yearly, quarterly, or monthly annuity, according as the periodic payments are made once a year, or in two half-yearly, four quarterly, or twelve monthly equal portions. Annuities are also termed *certain*, if payable for a definite number of years; but *contingent*, if their duration depend on adventitious circumstances, such as the existence of one or more lives, in which case they are called Life Annuities. We will confine our attention to the first kind, in which there are only two fundamental questions requiring special examination, from which every problem relating to annuities can be deduced, premising that, unless the contrary is stated, the annuities are supposed payable at the *end* of each year:—

First,—What sum an annuity would *amount* to at the end of the time of its duration, if each periodic payment were to be invested and to produce compound interest:

Secondly,—What *present sum* paid down is equivalent to an annuity payable for a given number of years:

These values will vary with the rate of interest supposed in the calculations, and also with the frequency of the intervals, at which the periodic payments of the annuity, or instalments

of interest thereon, are supposed due. It is obvious, however, that, first:—The *amount* of an annuity, at the end of the time during which it is to continue, is the sum of the accumulations of each periodic payment, improved at compound interest, from the date at which each was paid or due, up to the time of the expiration of the annuity. And secondly:—The *present value* of an annuity is equal to the sum of the present values of each of the periodic payments, discounted at compound interest; each payment being separately discounted for the respective distance of time between the present and the date at which it is due.

25.—Since an annuity is strictly equivalent to its *Present value*, the party purchasing and the other selling being, as far as the mathematical considerations go, in equal positions; it follows, that the *Amount* of an annuity is exactly equal to the amount, to which the present value of the annuity would accumulate, if itself invested and improved at the same interest, until the end of the given number of years.

Hence, when accurately calculated at the rate of interest agreed upon, the Amount and the Present value of the annuity are each exactly equivalent to the annuity itself, and are thus equally applicable to the affairs of life, the one being frequently exchanged for the other. Thus, a debtor may clear off a given sum now due, by paying to his creditor, either an equivalent annuity for a certain number of years, or its amount at the end of that time; and a land-holder, whose estate is charged with an annuity, can compound for it by giving a present sum in cash.

As an example:—referring to Tables 9 and 10, we see that at 7 per cent. rate of *yearly* interest, the present value of 8*l.* 8*s.* 0*d.*, paid at the end of each year for ten years, is nearly £59, and also that the amount of 8*l.* 8*s.* 0*d.* a year at the end of ten years is 116*l.* 1*s.* 2*d.*; moreover Table 3 shews that the single sum £59 improved at 7 per cent. compound

interest for ten years gives the same amount, proving that the three are equivalent to each other; or in other words, supposing two men each to undertake to pay 8*l.* 8*s.* 0*d.* at the end of each year to a society for ten years, and that one desired to receive in return the present value of his ten years' payments, while the other determined to wait for his share until the end of the time, they would both be fairly treated, in respect of their subscriptions to the society, if the one received £59 at once, and the other 116*l.* 1*s.* 2*d.* at the termination of the annual payments.

The same reasoning applies to annuities of greater or smaller amounts for different periods of duration, and a society receiving, as in the above example, annuities from its members and paying to some their *present value* and to others their *ultimate amount*, is on the general principle of a Benefit Building Society.

26.—The whole theory of annuities cannot be explained without some analytical investigations, such as will be found in the Appendix. For practice, Tables 9, 10, and 11 may be used, in which are given, for various interests, the amount and present value of an annuity of £1, payable at the *end* of each year, and the annuity which £1 will purchase. These tables, however, will serve for annuities greater than £1, and they may be adapted when the annuity is paid at the *beginning* instead of the *end* of each year.

27.—If the annuity be supposed payable half-yearly or quarterly, or *monthly as in Building Societies*, some modification is necessary in the tables, the nature of which is explained in the Appendix. But it is clear that:—A *smaller* annuity ought to be paid during a specified number of years, in consideration of a given present sum, debt, or purchase-money, in proportion to the *greater* frequency of the periods, at which the equal portions of the annuity are to be paid. Similarly:—The accumulated *amount* of an annuity, at the end of a given

time, increases with the *frequency* of the intervals at which the instalments are paid.

28.—It will be observed that:—For a given annuity, the *amount* at the end of a given number of years will increase with the *rate of interest* at which the money is supposed invested. And inversely:—The *larger* the accumulation promised in return for the subscription of an annuity for a stated time, the *higher* will the rate of interest be, at which it must be invested. Hence, the first point to be thought of, when an accumulation is promised for an annuity paid, is:—Can the necessary rate of interest be obtained? Can every instalment of the annuity be immediately and continually invested throughout the whole time, at the rate required?

Thus for example:—£6 a year will amount to 82*l.* 18*s.* nearly, in ten years, at 7 per cent. rate of interest. But in order that £6 a year may amount to £120, the rate of interest required is 14½ per cent. (See Appendix.)

Again, that £6 a year may amount to £140, or £3 a year to £70 in the same time, the rate of interest required is nearly 18 per cent.

29.—The *number of years*, during which a given annuity is to be paid in return for a given present sum, debt, or purchase-money, increases with the *rate of interest* supposed to be paid. Inversely:—The advantage obtained by a borrower, who pays a certain annuity in return for a loan, diminishes as the number of years increases. Example:—If a borrower pay 8*l.* 8*s.* 0*d.* a year during ten years for a loan of £59, he is paying at the rate of 7 per cent. compound *yearly* interest, but if the time be increased to 13 years, the rate of interest will be about 10½ per cent.

30.—On comparing Table 3 with Table 9, it will be seen that *The difference of two successive values of the annuity-*




table of amounts is equal to the sum given in the table of single amounts for the lesser number of years. Example:—

The amount of <i>an annuity</i> of £1	
in eleven years, at 5 per cent.	= £14·2067
Ditto ditto in ten years..	= £12·5778
Difference.....	= <u>£1·6289</u>

which is the amount of a *single* pound at 5 per cent. by Table 3. So that Table 3 might in fact be calculated from Table 9, if that were given.

The converse holds for *present values*, see Tables 8 and 10.

31.—If annuity payments be *deferred* for a few years, the *present value* and the *amount* of such an annuity can be easily deduced from the tables for immediate annuities. For instance, the present value of a *deferred* annuity of £1 for ten years, at 5 per cent., (the first payment to begin at the *end* of five years,) is equal to the present value of the *immediate* annuity:—*viz.*, £7·7217 for ten years divided by the *amount* of £1 for four years, or by £1·2155. The answer is £6·3527.

ON THE DOUBLING OF MONEY.

32.—When a sum of money increases to double its value by the accumulation of compound interest, the analytical investigations assume a peculiar form, from which we have deduced the following theorems as bearing on the system of many Benefit Building Societies:—(*See Appendix*).

1.—For all rates of interest not exceeding 10 per cent.:—

The number of years, in which a single sum will become double in amount by the accumulation of compound interest, may be found by dividing 70 by the rate of interest per cent., and taking that whole number which is nearest to the quotient obtained.

The accuracy of this theorem may be judged of by Table 7, but the property is valuable as furnishing a simple rule and one easily remembered. Thus:—

If the rate of interest		} then the number		} $\frac{70}{r}$ nearly, = 35 years.	
be 2 per cent,		} of years will be			
„ $2\frac{1}{2}$	„	„	$\frac{70}{2\frac{1}{2}}$	„	= 28
„ 3	„	„	$\frac{70}{3}$	„	= $23\frac{1}{3}$
„ $3\frac{1}{2}$	„	„	$\frac{70}{3\frac{1}{2}}$	„	= 20
„ 4	„	„	$\frac{70}{4}$	„	= $17\frac{1}{2}$
„ $4\frac{1}{2}$	„	„	$\frac{70}{4\frac{1}{2}}$	„	= $15\frac{2}{3}$
„ 5	„	„	$\frac{70}{5}$	„	= 14
„ 6	„	„	$\frac{70}{6}$	„	= $11\frac{2}{3}$
„ 7	„	„	$\frac{70}{7}$	„	= 10
„ 8	„	„	$\frac{70}{8}$	„	= $8\frac{3}{4}$
or 9 nearly					
„ 9	„	„	$\frac{70}{9}$	„	= $7\frac{7}{9}$
or 8 nearly					
„ 10	„	„	$\frac{70}{10}$	„	= 7

which agree with the whole numbers given by the table.

When the rate of interest is higher than 10 per cent., a larger dividend than 70 must be taken.

2.—The *amount of an annuity* of £1, in the exact time in which a *single* sum would double, is equal to £100 divided by the rate of interest per cent.

Thus, at 5 per cent. money will double in 14 years and a fraction, and £1 a year for the same time will amount to £100 divided by five, or £20, which agrees with Table 9.

33.—From theorems 1 and 2, we have:—

3.—If a sum of money be borrowed for such a time, that, if unpaid, it would become doubled by the accumulation of compound interest, then the debtor can liquidate his debt with interest in that time, by an annuity equal to twice one year's interest on the sum borrowed:—If the

time be a certain number of years and days, the last payment of the debtor will be a fractional portion of the year's annuity, proportionate to the fractional number of days.

Thus, if £60 be borrowed for 14 years 76 days, (which is the exact time in which money will double at yearly 5 per cent.), then the debt can be repaid, including principal and interest, by an annuity for that time after the rate of £6 a year, since £3 is the interest on £60 at 5 per cent.

Again:—If £60 be borrowed for 10 years 90 days (the exact time of doubling at 7 per cent.), then a yearly annuity of 8*l.* 8*s.* for that time will repay principal and interest—4*l.* 4*s.* being one year's interest on £60 at 7 per cent.

If the above annuities were paid in *monthly* instalments of 10*s.* and 14*s.* the debts would be repaid in very nearly fourteen years and ten years respectively.

4.—The *interest*, at which money will double in a *given* number of years, is nearly equal to 70 divided by the number of years.

5.—If two equal sums be invested for the same time, the one at simple, the other at compound interest, the former will increase 70 per cent. in the time in which the latter will double; or, whatever be the rate, the advantage in the time of doubling will be 30 per cent. in favour of compound interest.

34.—The results obtained by means of the above theorems become more accurate, when the instalments of interest or annuity are due more often than once a year, and, in the case of *monthly* payments, they are found to differ but very little from the real values. The exact degree of approximation afforded by these theorems we have examined in the Appendix, together with the *general extension, of which they admit, to*

the case of money increasing to several times its original value.

One is most important:—

If a sum of money be borrowed for such a time, that (if unpaid it would amount to f -fold its original value) then the annuity which would pay it off, principal and interest in that time, is equal to f divided by f , less one, times one year's interest on the debt. Or:—

The amount of an annuity of £1 (accumulated at compound interest, i per cent., during the WHOLE time in which the single sum £1 would accumulate to £ f) is equal to $£\frac{100(f-1)}{i}$

35.—The Appendix also contains other theorems, which have been deduced, relating to various interesting points in the working of Compound Interest. The results in some instances, however, are obtained only by the aid of analysis of a somewhat high order. At the end of the practical Section 4, will be found the * Formula for calculating tables for the allowance of interest, in case a society undertake to receive occasional *deposits*, with power to the depositor of withdrawing the whole or part of the sum, under certain conditions.

* [The principle referred to is analogous to the feature of Life Assurance denominated "*Deposit-Assurance*," which was introduced by the Author some years ago into the plans of the Western Life Assurance Society.]

CHAPTER III.

ON BENEFIT BUILDING SOCIETIES AS AT PRESENT CONSTITUTED.

SECTION I.

The theoretical principles of a Terminating Society.

[*'A minute inquiry into the various systems of these associations has confirmed an opinion, suggested by previous experience, that, among other defects, one stands prominent as the fatal obstacle in the way of their success, arising from the almost universal condition, by which the existence of a Benefit Building Society is limited to a specified number of years.'*—See Preface to First Edition].

ART. 36.—Benefit Building Societies are generally founded with the same object, but carried out with various modifications. They are now divided into two distinct classes: the one *terminating*, the other *permanent*. A terminating society is one, which it is intended to close at the end of a certain period, when all the shares of the members have realized their full amount. In a permanent society it is merely the membership of a shareholder that terminates at the end of a fixed number of years, (when he receives the full value of his shares,) the society itself continuing for ever. Whichever system be adopted, the object of a Building Society is still the same, namely, as we have stated in Chapter 1, to enable individuals to associate together and unite their subscriptions from time to time in one common fund, some for the simple purpose of placing a portion of their incomes in an advantageous invest-

ment, others with the view of borrowing money, by which they may purchase houses or other similar property.

But, in order that one man may borrow, there must be others who lend. To induce a person of limited means to lay by periodically a portion of his income merely as an investing member, some strong incentive must be held out, and the only one that has been found successful, is to offer him a high rate of interest for the use of his money. The legislature, being aware of the force of this consideration, and of the importance of removing any obstacle at that time existing, passed the Benefit Building Society Act of 1836, in which the following clause was specially introduced:

“And be it enacted, That it shall and may be lawful to
“and for any such society to have and receive from any
“member or members thereof any sum or sums of money,
“by way of bonus on any share or shares, for the privilege
“of receiving the same in advance prior to the same being
“realized, and also any interest for the share or shares so
“received, or any part thereof, without being subject or
“liable on account thereof, to any of the forfeitures or
“penalties enforced by any Act or Acts of Parliament relating to usury.” So that, in other words, the society might charge its borrowing members, under the name of bonus, any rate of interest upon a loan which it might deem advisable.

37.—In this chapter we shall examine the character and deficiencies of Terminating societies, and in the next enter upon the question of the merits of their successors on the new principle of Permanence.

The majority of the terminating building societies announce at the time of their formation, that their shares are a fixed sum, usually £120, to be realised at the expiration of a given number of years, by which time, it is expected, the association will terminate with that result. The number of

years is generally 10 or 14, although some societies exist whose expected duration is 11 or 13 years, and some in which the amount of the shares is £50 or £100. The subscriptions of the members are a few shillings a month per share, varying with the number of years calculated as the probable duration of the society, but not allowed by the statute to exceed 20 shillings per share, and the Investing or non-borrowing members are promised the amount of their shares at its close. The subscriptions are received at monthly meetings, and, with as little delay as practicable, are lent to those members, who wish to become Borrowers, and to obtain a loan in the shape of a present advance on each share they hold or take up, in lieu of the amount, which they would otherwise receive at the end. The sum advanced per share of course depends upon the number of years, that remain between the time of borrowing and the date, at which the society is expected to terminate.

38.—To explain this we will take an example, but it must first be remarked, that, in most of the associations at present existing in the United Kingdom, which have any principle of reasoning for their guide, one of two rates of interest has generally been adopted as the basis of the calculations; their expected duration being consequently different. These rates are 5 or 7 per cent. per annum; but the interest, though taken at a nominal annual rate, is supposed to be realised at the end of each month, instead of at the end of each year. In practice many difficulties, to which attention is drawn further on, oppose the actual realisation of interest monthly; yet, for the purpose of an example, the question may be treated theoretically, as if no such impediments were in existence.

Let the case be that of a 14 years terminating society, formed on the basis of a 5 per cent. rate of interest, and consisting of shares of £120 each, on which every member pays 10s. at the beginning of each month during 14 years. This sum is assumed, because such a monthly annuity would, at 5

per cent. rate of interest *supposed realised monthly* and continuously invested and reinvested, accumulate to £120 at the end of nearly 14 years; hence £120 is the amount that a non-borrowing member would be entitled to receive at the close of the society.

On the other hand it is known, that £60 cash, invested at 5 per cent. rate of compound *monthly* interest, will accumulate to £120 in nearly 14 years. If then a member should wish to discount one share and take its present value at the beginning of the society, he would be entitled to receive £60, in consideration of his subsequent monthly payment of 10s., or £6 a year for 14 years. Similarly, should he desire to borrow £300, or 5 times 60, he would have to make payments on 5 shares, amounting to £30 a year.

As the society progresses in its existence, the number of remaining months, over which a borrower's payments can extend, diminishes; so that the amount of advance per share, which a member would be entitled to receive, if he wished to borrow at a later period of the society than the beginning, would depend upon the date of his first becoming a subscriber. If he had only just entered before receiving a loan, the amount of advance per share would merely be the discounted present value of his future payments; but if he had been a subscriber for some months previously, then, in addition to the allowance for his future subscriptions, he would also be entitled to a sum arising from his past payments.

Thus, for example:—In the 14 years society in question, a member whose subscriptions are 10s. a month, or £6 a year for each £120 share, if he wished to borrow in the first month of the 7th year and had been a subscriber from the beginning, would receive 42*l.* 1*s.* 1*d.* on account of his past payments during six years, and 38*l.* 19*s.* 8*d.* in consideration of his future subscriptions, making altogether 81*l.* 0*s.* 9*d.* We quote one of the societies on this plan, but this can easily be proved correct by means of a monthly compound interest table.

But if the borrower had only just become a member at the beginning of the seventh year, and did not pay up any arrears or backsubscriptions, he would merely be entitled to 38*l.* 19*s.* 8*d.* as an advance, in consideration of the payment of £6 a year, to be made by him during the remaining 8 years; and, under such circumstances, it is seen by rule of three that to obtain a loan of 81*l.* 0*s.* 9*d.*, he would have to pay 12*l.* 9*s.* 6*d.* a year during the 8 years. So that in fact, the *nearer* a member, at the time of his first joining, or taking up the required number of new shares, and then borrowing, is to the epoch at which the society is expected to close, the *larger* will be his payments in return for a given loan. As a second instance, it would be found that, although a member, who borrowed £300 at the commencement, would merely pay £30 for 14 years, yet, if he took up the shares at the beginning of the 9th year and obtained the same loan, without paying up any arrear-subscriptions, he would then have to pay 59*l.* 18*s.* 0*d.* for the remaining 6 years. Such a high rate of repayment becomes very inconvenient to members of limited means, who may wish to borrow money for the purchase of house property, not at the beginning, but, when they have for some time been members; and the difficulty increases more and more, with the progress of the institution.


39.—The preceding is an example at 5 per cent. Societies formed upon the basis of 7 per cent. rate of interest are expected to last only 10 years, and on this supposition there exist a great many. The amount of the shares to be realised, at the end of such a period, is usually, as before, £120, for which the members pay 14*s.* a month for 10 years. This rate of payment is adopted, because such a monthly annuity would amount to £120 at the end of nearly 10 years, supposing each monthly payment *immediately*, as it is received, invested at 7 per cent. compound interest, calculated also as realised *monthly*.

Again:—since £60, if similarly invested at 7 per cent.,

would, with its accumulations from compound interest, amount to £120 at the end of nearly 10 years, it is obvious that a member effecting a loan upon a share at the beginning, and receiving £60 as its present value, would be in an equitable position with regard to a non-borrowing member, who waited for the full value of his share or £120. at the termination of the society.

40.—Other associations exist founded on other rates of interest, as 6 or 8 per cent., and of different expected periods of duration. The principle of calculation, however, is the same, and the same remarks apply to all, whatever be the rate adopted. The intention of each is to give to the investors the amount of their shares in full, at the close of the number of years representing the probable duration of the society; and throughout its existence to invest the funds, from time to time as collected, in the shape of discounted advances to any of the members who may wish to borrow. The amount of advance per share being supposed proportionate—*First: to the number of years or months that the borrower has already been a subscriber; and Secondly: to the unexpired time, which remains between the epoch, at which he obtains the loan, and the expected date of the termination of the association.*

41.—Such is the system of the superior class of terminating Benefit Building Societies, but it must not be supposed, that all or even the greater number of the existing associations are established on such accurate principles of calculation. This unfortunately is not the case. By far the majority are based on rates of subscription fundamentally unsound, and, in their subsequent dealings, both with the investors and borrowers, proceed on assumptions, which cannot be justified by theoretical or practical reasoning. Of this the next section will contain a few instances, which prevail in several hundreds of the societies now in existence, and are selected not as being by any means the most extravagant of the number, but simply from the extent to which they are adopted.



The defects in most cases are so numerous and varied, and in each individual society so interwoven one with another, that it will be necessary for the better separation of ideas, and in order to enable the reader to fully understand the details into which we are about to enter, that we should endeavour to introduce some classification among them. The chief heads under which they may be resumed are as follows:—

1.—Inaccuracy in theory: such as erroneous rates of subscription, &c.

2.—Practical causes, which nullify the results obtained from accurate theory: such as loss of interest, the expenses of management, &c.

3.—The *pecuniary loss* inseparable from the condition of termination.

4.—The great *inconvenience* caused to individual members by the terminating system: such as the difficulty of withdrawing at the time when a member may desire it, or of effecting the redemption of a mortgage on equitable terms, &c.

5.—Losses through mismanagement: viz., From too frequent inattention to the sufficiency or soundness of security accepted for investment; or, from the consequences of inaccuracy in balance sheets, &c. &c.

Some of these defects will be explained by themselves in the next section; others, to avoid the necessity for subsequent repetition, will be considered by way of contrast in the chapters, which treat of the advantages of the permanent principle and the practical working of building societies.

SECTION 2.

* *Societies on erroneous principles.*

42.—*First instance*:—Societies exist proposing to last 10 years only, and sometimes for a less period, the shares of which are £120, and the payments of the investors, 10s. a month: that is to say, for a subscription of £6 a year during 10 years, or a total payment of £60, a member is promised £120 at the end of that time.

Now, in order that the payment of £6 a year may accumulate with compound interest to £120, in the course of 10 years, a rate equivalent to $14\frac{1}{2}$ per cent. yearly interest must be realised; and unless the subscriptions be continually invested and re-invested at this rate, the promised results are impossible; of this the reader may satisfy himself by referring to the Appendix.

The borrower's repayments, however, do not bring into the society a higher rate of interest than 7 or 8 per cent., and in some cases much less; for the same prospectuses state, that if a member desire an advance in the first year, he will receive £60 on each share, (sometimes only £55,) in return for which he will have to pay 14s. a month, or 8l. 8s. 0d. a year, for the 10 years, the extra 4s. being usually charged under the name of redemption fee. A reference to Arts. 28 and 29 in the preceding chapter, or to a compound *monthly* interest table, will shew that the actual interest produced by these repayments, which

* The attention of Trustees and Directors is requested more particularly to the remarks contained in this section.

include principal and interest, is between 7 and 8 per cent. per annum. The advances also, made in the second and subsequent years of the existence of the association, are in the same proportion;—consequently, the subscriptions of the members are incorrectly calculated to the large amount of nearly 7 per cent. annual rate of interest, even although the borrowers pay so high a rate as 8 per cent. Hence it follows, *that the promised results cannot be realised.*

The above assumes that the monthly receipts are also re-invested monthly. Such in reality is not the case. Indeed, even if a society of this kind were to experience no pecuniary loss from any of the causes, which will be examined further on, yet the result would practically only be as follows:—By Table 9, a yearly annuity of £6 invested continuously at 7 per cent. will accumulate to 82*l.* 18*s.* 0*d.* in 10 years; leaving a deficit of 37*l.* 2*s.* 0*d.* per unadvanced share, or nearly one-third of the promised amount, at the epoch of the expected termination of the society.

* Again, even supposing the borrowers should unwittingly consent to pay 10 per cent. interest for their loans, there would yet be a deficiency of 24*l.* 7*s.* 6*d.*; since the amount of £6. a year in 10 years at 10 per cent. is only 95*l.* 12*s.* 6*d.*

This remarkable instance of inaccuracy of rates is the more worthy of notice, as it prevails with various other less important errors in a very great number of the existing Benefit Building societies, and thus involves the pecuniary welfare of many shareholders. There can be no doubt, however, that it entirely arises from ignorance, for the same prospectuses usually declare, that the annual rate of interest, which is charged from the borrowers, does *not exceed 4 per cent.* This last statement may probably be suggested by some misconception founded on the circumstance of the borrowers paying 4*s.* a month per share more than the investors.

* See an instance at the end of this Section, Art. 45, of unjustifiable usury, which is prevalent among many of the old societies.

43.—* The *Second instance* is of a more complicated character, and is introduced with considerable pretension by its advocates as an improved plan of a Benefit Building Society.

The scheme professes to guarantee that the society shall positively *not* last more than 10 years; that non-borrowing members, by paying 5s. a month, or £3 a year, for 10 years, will be entitled to and shall receive £70 at the end of that time, which will be £40 more than the total amount of the 10 years' subscriptions; also, that a borrower shall receive as an advance on each share, if there be *no* competitors with him for the same loan, the total of the 10 years' subscription or £30, in return for which he also shall pay 5s. a month or £3 a year for 10 years: or, in other words, they give us to understand, that a member can borrow £30, and repay the whole, including principal "and interest," by ten payments of £3 extended over 10 years.

If, however, there are several applicants for advances, then the prospectuses state—

"That the funds of the society shall be put up to open
"competition; and the same shall be awarded to those mem-

[* The following advertisement, which is extracted from a weekly periodical for May 1850, has during the past year been most industriously inserted, and will serve as a specimen of popular credulity:—

"Immense success of Mr. ———'s Building and Investment Societies.

£70 for every £30 Subscribed in a Fixed Term of Ten Years.

NOTICE.—The Members of the ——— BUILDING AND INVESTMENT SOCIETY may now (the Second Year having terminated) receive the whole amount of their subscriptions with 18½ per Cent. per *Annum* Interest thereon. By order of the Board,
(Signed) ———, Secretary.

Important to Persons desirous of Purchasing House Property.

£1,000 will be offered for Sale at the *Second Meeting* of the ——— BUILDING AND INVESTMENT SOCIETY, on THURSDAY EVENING, the 9th of May, 1850, at half-past 7 o'clock.—*Interest payable by the Borrowers* from 1 to 5 per cent (!).—The whole amount of the purchase-money and law charges advanced by the Society.—No arrears to pay—*Fixed to close in 10 years certain.*—Subscription, 5s. per Share per Month.

From the great number of Shares taken at the First Meeting, this Society will be closed after the 3rd Meeting.]

“bers who shall offer the *highest premium* or interest for the
 “use thereof. By this plan the great evils, loss and un-
 “certainty, attendant upon the rotation and balloting systems,
 “are avoided.

“That the premiums or interest shall be the only sum
 “payable by the borrowers for the use of the money that
 “shall be advanced to them.

“That the premiums bid shall not be deducted from the
 “sum to be advanced, but may be paid by equal monthly
 “instalments, spread over the remainder of the ten years.

“This will be a very great accommodation to the borrowers,
 “and is, in the opinion of the Directors, a great improvement
 “upon the old systems, under which the premiums are de-
 “ducted from the money to be advanced.

“In order that the members may be guided as to the
 “premiums they may safely bid for advances of money, the
 “following table is given, showing the amount of interest, to
 “which the premiums from £3 to £15 per share will be equal
 “for the ten years:—namely,

<i>Premiums, if given during the first year.</i>						Interest \pounds cent. \pounds ann.			
\pounds .	s.	d.				\pounds .	s.	d.	
3	0	0	Premium for an advance of £30, spread over the 10 years, will be found equal to			}	1	0	0
4	10	0	ditto				1	10	0
6	0	0	ditto				2	0	0
7	10	0	ditto				2	10	0
9	0	0	ditto				3	0	0
10	10	0	ditto				3	10	0
12	0	0	ditto				4	0	0
13	10	0	ditto				4	10	0
15	0	0	ditto				5	0	0

“While such great benefits are secured to the borrowers, it
 “will be seen that those members, who shall allow their sub-
 “scriptions to remain as investments, will receive, at the

“ expiration of the ten years *certain*, a very large profit,
 “ amounting, it is calculated, (from the facilities and encouragement afforded to borrowers, and the certainty of this
 “ society being always able to lend out its funds at a moderate
 “ rate of interest), to nearly £40 per share, or £70 for each
 “ £30 subscribed in the course of the 10 years: thus shewing,
 “ that persons wishing to invest their small savings, and
 “ parents desirous of securing a future provision for themselves or their families, will be able to do so in this society
 “ with a vast deal more advantage and solid benefit, than they
 “ can by investing their money in life assurances, or depositing
 “ the same in savings’ banks, which do not in any case allow
 “ more than 3 per cent. per annum interest, or *not above one-tenth of the estimated interest or profit to be gained by investing money in this society.*”

“ This plan clearly proves that, although the investors (that is to say those members who do not borrow money of the society) will probably more than *double* the capital they may invest in this society in the 10 years; the borrowers will gain *considerably more* in the same time.”

We have quoted so much of this prospectus, because the system is one, that contains a variety of complicated errors common, unfortunately, to a considerable number of societies.

It has been said, that the investors are promised £70, in return for 10 annual payments of £3.—This cannot be practicable unless the subscriptions are invested after the rate of 18 per cent. yearly interest, continuously realized during the 10 years, by the constant investment and re-investment of the society’s funds, in loans to borrowers. (*See Appendix*).

Now the members who borrow, pay more or less, according as there is competition or not for advances.

If there be no competition, a borrower gives no premium, and consequently, in obtaining a loan of £30 per share, has

only to pay £3 a year for 10 years, or in other words, he has the loan *without paying any interest for it.*

If there be competition, the *highest* premium he can pay on each £30 share is £15, spread over 10 years: he therefore obtains an advance of £30, for which he has to pay annually £3 subscription, and £1. 10s. 0d. instalment on his premium during 10 years, which is equivalent to paying nearly 8 per cent. rate of interest for the loan. See Table 10.

So that in the most favourable case the society would experience *annually a deficiency* of 10 per cent. rate of interest.

If the premium or discount, which a borrower allows, be less than £15, the repayments made by him are smaller, and consequently the rate of interest obtained on the average is less than 8 per cent. Hence, while, on the one hand, this *Improved plan undertakes to guarantee to the investors a profit arising from the accumulations of their subscriptions at 18 per cent. compound interest, yet, on the other, it is lending out the money at rates, which never can exceed 8 per cent., and in most cases would be considerably less.*

We pass over the other incorrect estimates advanced by the prospectus, respecting the rates of interest, which are said to correspond to the various amounts of premium mentioned, as we conceive enough has been stated to prove the *utter unsoundness* of the plan.

44.—Many other societies exist conducted upon various schemes, which are equally fallacious, and up to the time of the publication of the present edition, announcements such as the following are constantly appearing in the public prints:—

“From the peculiar advantages offered by this society, the investing members will reap above 20 per cent. interest for the use of their subscriptions,” &c., &c.,

And further on, the same advertisements assert—

“That the borrowers will scarcely pay at the rate of 2 per cent. interest for their loans.”

Again we find—

“ It is calculated that those members who allow their subscriptions to accumulate at compound interest till the close of this society, will receive about 25 per cent. annual interest for the same, &c., &c.: and from 80 to 100 per cent. profit will be obtained by those members, who purchase property with the money advanced to them by the society.”

Such statements require no comment.

It is not necessary to extend our inquiry into the defects of other societies, as it is to be hoped that increasing knowledge on this subject will prevent their formation for the future. Our object in this place is rather to point out the general practical objections to the system of terminating societies altogether, than to rectify misconceptions, which arise from ignorance. It is, however, worthy of notice, that the tendency of most new societies is to diminish the rate of contribution paid by the members, without making any corresponding reduction in the value of each share promised at their termination. Formerly a more secure principle was adopted, and the monthly subscriptions required on each share were much larger. For instance, in most of the old Liverpool and Manchester Societies, the shares were fixed at £150, and the monthly payments at 20s. per share. Hence, many succeeded in terminating successfully. The modern associations, however, diminish the monthly subscriptions one half, and yet take only £30 off the amount of the share to be realised. In general the statements put forth at the present day do not depend upon principles deduced from sound knowledge or careful reasoning, but seem rather to be the offspring of crude guesses thrown out at random. The originators of the multitudinous variety of new and improved plans, promising such large benefits simultaneously to each of the two classes of members, who alone constitute these societies, might, with as much probability of success, devise a game of cards, at which all who played should rise up winners. They do not reflect

that, although a fair and reasonable benefit may be secured to the investor by lending on equitable terms to the borrower, yet, any extra profit beyond this, which is promised to the one, can only be obtained at the expense of the other.

45.—By a mistaken interpretation of their rules, much injustice is occasionally committed. For example, in some associations the borrowers pay interest at 4 or 5 per cent. on the amount advanced, pursuant to clauses similar to the following: *viz.*,

“ PAYMENT OF INTEREST.

“ 1. That any member having received his or her share or shares, shall pay interest at £5 per cent. per annum, on the amount borrowed, by equal monthly payments, such interest to commence from the time the money is advanced, or if the security for the same shall not be completed previously, then from the third month from the time of purchase, and shall be subject to the same fines as for subscriptions in arrear.”

The obvious equitable interpretation of the preceding is, that the interest-subscription shall be after the rate of 5 per cent. on the *whole* sum borrowed, *diminishing*, if the debt diminish, in just proportion. For example, let the debt be £100; the borrower's payments would comprise the ordinary subscription, and £5 a year or 8s. 4d. a month, for interest. As, however, the principal of his debt is gradually liquidated in the period of the society's duration, it would not be fair to require him to keep on paying £5 a year for interest to the end; inasmuch as, in so doing, he is practically paying sums in interest, which increase the rate from 5 per cent. up to 50 per cent. Yet this is perpetrated in many societies.

SECTION 3.

The leading practical objections to Benefit Building Societies as at present constituted.

46.—Among the objections which apply to the majority of existing societies, there is one which is peculiar to those founded on the terminating principle:—

In consequence of its being intended to close the society in a given number of years, or as soon after as practicable, the opportunity for investment soon ceases, as the members are unwilling to borrow in the later years of its existence, when the period, over which a loan can extend, has become small, and the corresponding rates of repayment much increased.

It is found by experience, and it is indeed a fact, which common sense would suggest, that it is almost impossible to find members who will care to borrow, when the first five or six years of any society's expected duration have elapsed. The monthly repayments upon a loan, which is to be only for a short period, become too large to suit the means of the industrious classes, who are usually the shareholders of a Benefit Building Society; and this difficulty increases to an insurmountable degree in the last years of the proposed term of its existence. For although a man, who borrowed £300 for 14 years in order to purchase a house, might contrive with comparative ease to pay £30 a year in addition to the taxes and ground-rent; yet he would probably be unable to pay 59*l.* 18*s.* 0*d.* a year if the loan were merely for 6 years, or 85*l.* 12*s.* 6*d.* a year if it were only for 4 years, and similarly for other periods.

In ten-years societies the difficulty is still greater, as the terms for loans are much shorter. This circumstance creates

therefore a cessation of investment, and consequently a loss of interest, which altogether nullifies the calculations upon the supposed truth of which the society was founded; for it has been shewn in the general remarks upon compound interest contained in Chapter 2, that, even supposing the rates of a society accurately calculated, they can only prove correct on the supposition, that there is never any loss of interest on its funds, or in fact, that all monies received from subscribers are continuously invested until the end. Hence this objection, which becomes greater and greater with the progress of the society, stands prominent as a vital obstacle.

Some societies of recent formation have attempted to obviate the difficulty by a plan, which, in some measure, would be successful in preventing this loss of interest, were it not that it entails another equally important objection relative to the Expenses of the association. The plan alluded to consists in dividing by lot any balance of money existing at a meeting, where there are no borrowers, among those members who have not yet received advances on their shares; so as to compel them at once to withdraw from the society, as far as such shares are concerned; the amount paid on this forced withdrawal of each share, being regulated by its value at the time of withdrawal, according to the rules by which all the members are severally and collectively governed.

Such a measure, though necessary, adds to the general difficulties in the principle of termination, since it tends month by month, in a rate rapidly increasing, to diminish the number of the members of the association; for in each successive month of the last years of its expected existence, the number of members, who desire to borrow, becomes less, and in the absence of applications for advances, the number of investors, or non-borrowers, who must be paid off, increases. Thus the society, which might otherwise have succeeded, rapidly sinks in importance, and *the expenses and any deficiency of funds* which may afterwards be discovered, instead

of being spread over a large body, have to be borne by the few, who are unlucky enough to remain to the end.

47.—The following objections for consideration, although common to many societies, whether terminating or permanent, are nevertheless increased and aggravated when the institution is of a transitory character.

First.—*The interest is usually calculated as likely to be realized monthly, whereas such is practically not the case.*

It is not possible but that, from the very beginning of any society's existence, some portion of its funds will at various periods remain unemployed for a time. Sometimes this takes place, because the balance in hand is not large enough to meet the purpose of any borrower, particularly in the first year or two, when the subscribers are too few in numbers to raise quickly enough an adequate sum. Sometimes, on the contrary, when the amount required by the borrowers, whose names are entered, has been advanced, there remains a sum which is not applied for.

Now it has been stated, that the interest is generally calculated as produced monthly, which would require that there should never be even a day lost in investing the whole of the subscriptions collected at each meeting; and since this is practically impossible, it may be laid down as an axiom, that no society can be secure, whose rates of subscription are formed upon such a principle. It is not remembered, that although it is desirable to receive the subscriptions monthly, yet it is not safe to act upon the hypothesis of their being immediately reinvested, or of monthly interest being actually obtained, as such a mode of calculation reduces the Rate of repayment, which it is necessary to charge to a borrower for a given loan. It is one thing to receive the repayments monthly, and another to assume in the calculations, that they will be as frequently reproductive of interest. In other words, the safety of any society depends upon the managers always

having sufficient time, before the arrival of each of the calculated periods for reinvestment, upon which the tables are based, to complete the necessary details for preventing loss of interest, by investing all monies which are not required for the immediate purposes of management. This can only be secured satisfactorily, by making the epochs of monetary repayment in each year more frequent than the periods, at which allowance for interest is credited to the borrower in the fundamental calculations. Hence, it would be safer, at all events, if the interest were supposed paid quarterly; but, in order to remove any possible contingency from this source, we consider that, in all calculations, which form the basis of the subscriptions, the interest should be assumed as only realized annually and at the *end* of each year. The difference between this assumption and the actual result would be in favour of the society, and useful for contingencies.

48.—Whilst we are upon this subject, it is important to direct attention to another circumstance, which affects the accumulations expected to be realized from interest. In many societies there exists a practice of borrowing money from their bankers, for the temporary purpose of accommodating members sooner with advances. This is often done at the commencement of the association, and occasionally later in the course of its existence. If the sum charged by the bankers for the accommodation do not exceed the interest, which forms the basis of the society, and, as such, is expected to be paid by the borrowing members, then the transaction is safe and highly advantageous. But if the bankers charge 8 or $8\frac{1}{2}$ per cent. as at times has been the case, while the society only receives 5 or 6 per cent. from its borrowers, then a loss must be experienced. Those societies, in which the Advance-repayments are founded upon a 5 per cent. rate of interest, ought to pay particular attention to this consideration. If money be borrowed from extraneous sources, and it is undoubtedly

often necessary to do so, in order to carry on and facilitate operations, let care be taken that those members, who are benefited by the accommodation, pay the extra charge.

49.—Secondly.—*The loss from the expenses of management.*

Whether the amount of monthly subscriptions from the members of a Benefit Building society be theoretically sufficient or not; yet the promised results cannot be realized, in consequence of the annual loss caused by the Expenses, which are not adequately provided for.

In Section 1 we have seen that, in most societies founded upon principles theoretically accurate, the present value of each share at the time of an advance, or its amount at the *end* of the specified number of years, are respectively equivalent to the accumulation arising from the receipt and immediate reinvestment of the monthly subscriptions thereon. It follows, that the money so received cannot be appropriated to other purposes without loss; hence the expenses of starting and giving publicity to a Building society, and those also of its subsequent management, to however small a compass they are reduced, must be defrayed out of some other source of revenue than the share subscriptions.

If the initial and subsequent annual Expenses could be accurately estimated beforehand, there would be no difficulty in determining what payment per share ought to be contributed by each member to meet the necessary outlay. In the majority of cases, however, the probable amount of the expenses is neither known nor provided for, although they are frequently asserted to be covered by the entrance fees, fines for non-payment of subscriptions when due, and a few other trifling sources of profit, which the society may expect to receive. To a certain extent this is correct, but in no case are these receipts sufficient to defray more than a very small proportion of the expenses. In the first place it must be re-

membered that a fine is not wholly profit: a fine is inflicted at so much a month per share, for neglect of regularity in paying the monthly subscriptions when due, and, therefore, is partly requisite to supply the loss of interest, which the society would otherwise experience. And, even assuming that the preliminary expenses could be covered by the money received from entrance fees, which an inspection of the various Balance sheets would shew to be very seldom the case, yet the *annual* charges of management, consisting of office rent, salaries, &c., must be provided for.

It can be shewn by an example taken at random, how such an annual outlay would affect the ultimate status of a Terminating association. Take a 14-years Building society, whose shares are £120, produced by a monthly subscription of 10s. or £6 a year, and the annual expenses of which we will suppose to amount to £72 a year. Now £72 is 12 times £6, or equal to the amount of subscription received yearly on 12 shares, and, therefore, by the fundamental statements of the society, is calculated as equivalent to 12 times £120, or £1440; consequently the annual charges must produce a deficiency of £1440 in the society's funds at the epoch of its originally expected termination. This instance will apply in principle to all societies, whether of 10, 12, or 14 years' duration, unless, independently of the monthly share subscriptions, they have adequately provided for the annual expenditure. An inspection of many of the annual Balance sheets will, moreover, shew that, when the different expenses in the course of the year are added together, they will frequently be found to average from £120 to £150 a year, which, on the same principle of calculation as that made use of above, must create, even from this source alone, a deficiency in the society's funds, at the end, of from £2400 to £3000.

50.—Thirdly.—*There is no provision made in the theoretical*

calculations for losses, which may be experienced through bad investments, &c.

In all mercantile transactions of this kind losses must occasionally happen; and, whether they arise from wilful neglect or carelessness, or other causes, such as deterioration in the value of property, they combine to produce an effect for which no provision is made in determining the subscriptions to be paid by members. Although, at the commencement of a Benefit Building society, it would of course be impossible to foresee the individual event, or even the nature of the events, which are likely to be productive of loss, yet it is a matter of experience that losses will occur, entailing a deficiency in the society's funds at the time of its promised termination, which, with the combination of the other defects already mentioned, will, in the case of a Terminating society, tend to cause a *prolongation of its existence* beyond the originally intended or stated period.* By such means the duration of the subscriptions of both investors and borrowers is unavoidably extended, and they suffer in consequence a decided loss.

In the first clause of the Benefit Building Society Act, it is provided that the duration of a society, and the consequent continuance of the Borrower's repayments, shall depend, not on any number of years specified in the prospectus, but, upon the actual completion of the full amount of the *unadvanced* shares; so that a society may not close at the end of the expected term of its existence, unless the funds collected at the *last* monthly meeting shall be sufficient to give to each of the Non-borrowing members a division per share equal to its originally stated amount. If there be a deficiency, from whatever cause it may proceed, then must all the members, borrowers as well as non-borrowers, continue their subscrip-

* [A London Society, of which the proposed duration was 10 years, has lately decided that, from the extent of its losses by advances on insufficient or bad security, its term must be extended to 16 years.]

tions for such additional number of months as may be necessary, unless they should all unanimously agree to dissolve the society and put up with the loss sustained.

We are aware, indeed, that, in some of the Terminating societies, certain provisions have been inserted in the rules that, whatever be the position of the society's affairs at the end of the expected time of its duration, the borrowing members shall *not* be required to continue their payments beyond that period, but shall have their deeds returned to them, and their property released from any further claims. Such provisions are nevertheless of no legal avail whatever, and cannot prevent a prolongation of the society, nor in any way protect the borrowers from its consequences. No rule can protect them from a liability for such continuance of monthly subscriptions, as may be deemed necessary for the purpose of making up any deficiency that may exist.

51.—It appears, therefore, that no society can possibly possess, at the end of the originally specified time, sufficient funds to give to each Investor the full amount of his shares, even supposing the rates are accurately calculated, unless:—*Throughout the whole previous duration of the association, there has been no loss sustained, either through bad investments or other causes, or from extraneous expenses (not covered by sufficient extra contributions from each member over and above the receipts from fines, fees, &c.), and also unless no month has ever passed during which any part of the subscriptions has remained unproductive, so that, in other words, no loss of interest has at any time occurred.*

52.—Should there arise a deficiency from any one of these causes and the duration of the society be prolonged, it will be well to consider the effect, which such a result has upon the relative interests of the Investors and Borrowers respectively. An extension of its existence for 3 or 4 years in reality causes the borrowers to pay much more for the loans they have obtained,

than they imagined would be the case, when they entered into their engagements towards the society. The interest which they actually pay, instead of being perhaps only 5 or 7 per cent., becomes thereby increased to more than 10 per cent. An investor, also, not only does *not* receive the promised amount at the expected time, respecting which he may very likely have made pecuniary arrangements, but he is also compelled to continue his own subscriptions; by which means the benefit, that he derives from his shares, is very materially diminished.

As, however, the Investors have still the option of withdrawing from the society, if they are willing to accept the amount of dividend per share that the funds admit of, and thus mutually agree to dissolve the association, it will often be a question worthy of their serious consideration, whether it will not be better to endeavour to make an arrangement with the existing borrowing members, that the latter should at once contribute something towards the deficiency, to be determined by calculation, and then that all the members, both investors and borrowers, should agree to dissolve the society. Experience has shewn that this plan will really be the most advantageous to the two classes of members, inasmuch as the investors will be prepared, in general, to put up with some loss, or, in other words, to release the borrowers upon liberal terms, in order to receive at once some money for their shares, however the amount may fall short of what they expected.

53.—* We have said that the Borrowers have not to make good the whole deficiency in the society's funds, but only their proportionate amounts, considered relatively to the otherwise necessary continuation of subscriptions from both parties.

* [Since the publication of the first Edition, several old societies have remodelled their Rules and Rates of Subscription, and have been converted into *permanent* institutions upon a simple plan founded upon the principles contained in the following chapter. It is also highly gratifying to state, that but very few *terminating* societies have been lately formed.]

Hence, it will be advisable, in order to avoid an unintentional act of injustice to either, that the members should see that the proper quota to be contributed is determined by accurate calculation. In the Appendix we have given a specimen of the mode of investigation to be adopted.

54.—In perusing these remarks respecting the majority of the existing societies, and in comparing the liberal promises contained in their prospectuses with the periodic reports of the position of their affairs, we believe the impartial reader can arrive but at one conclusion. * He will become satisfied :—That not one in twenty, or even in a greater number, can possibly realize for its members, whether investors or borrowers, the advantageous results originally promised; and that, at the various epochs of their expected termination, there will be found such a deficiency of money as must deprive the possessors of unadvanced shares of a considerable portion of the accumulation, which they had been led to expect;—That in many cases, so far from receiving £120 per share, they will obtain less than £75, and that, if not disposed to accept whatever sum may be then offered to them, they will be forced to continue their subscriptions for several years beyond the specified time;—That these unfortunate results have arisen in great measure from a lack of proper knowledge and experience in the originators of these institutions,—a circumstance that does not always escape the notice of the industrious classes, and tends largely to diminish their faith in the real advantages of prudent and economical habits;—

*[Our readers should beware how they rely too hastily upon statements, which they may hear, of individual societies having terminated successfully. They will find, upon investigation, like the Author, that some questionable expedient has been adopted, towards the last years of its intended existence, by which an apparently prosperous end has been attained. For example, it may be mentioned that in the North of England a society terminated lately with the promised results, through the members paying for the last few years double the original subscriptions upon their shares. The public were then informed of the fact, that the shares had been realized:—The shareholders alone could have stated, what they had paid for the same.]

Lastly, that strong legislative measures are necessary for the due regulation both of the legal establishment of a Benefit Building society, and also of the system of its financial operations; and that some supervision should be exercised by truly competent persons, not only at the commencement of the society's existence, but subsequently, from time to time, throughout its progress.

CHAPTER IV.

ON PERMANENT BENEFIT BUILDING SOCIETIES.

ART. 55.—Having reviewed some of the leading objections to the plan of *terminating* societies, which propose to close at the expiration of a fixed number of years, or as soon after as the stated amount of the unadvanced shares is realised, we will now proceed to examine in detail the various superior features of the *permanent* system.

To enable an institution of this kind to conduct its operations successfully, as regards the profit, which is expected by the investing members, at the same time that the borrowers are freed from unjust responsibilities, it is proper, not only that the rates of subscription and repayment should depend upon a sound basis of mathematical reasoning ; but, also, that the general system of the society's practical operations should be, as much as possible, clear from those defects, which either prevent the realisation of the expected interest within the calculated time, or produce injury and personal inconvenience to the members. It is essential, that due provision should be made for the current expenses and liabilities, and that they should no longer be left dependent upon the uncertain receipts from fines or fees. The relative position of the two classes of members should also be more equitably considered, so that the profits of the one may not be increased by taking an unfair advantage of the other ; and the period of the duration of a mortgage should be rendered definite, in order that the claim of the society upon a borrower may at all times be subject to equitable adjustment, in case of his being subsequently desirous of redeeming his property ; since it

is evident that any uncertainty, respecting the duration and amount of a debt, tends materially to depreciate the saleable value of the security held for it.

As, moreover, it is not easy to form an opinion of the possible fluctuations in the value of money, when it is involved in transactions extending over a lengthened number of years, attention must be given to a suitable Reserve being annually made upon the society's profits to form a protective fund against future contingencies. Experience daily shews, that Benefit Building Societies, from the peculiar nature of their transactions, are exposed to losses, which cannot be averted by the most careful or intelligent management. By subjecting, however, the chance of their advent, to the laws of 'Average,' and by providing a resource, whence any deficiency may be at once made good, these institutions can be rendered, on the whole, as secure and as advantageous mediums for investment, as any other commercial societies in the kingdom.

56.—The Permanent plan, which we have devised, appears to meet these requirements, as it is entirely free from most of the objections peculiar to Terminating societies :—

1st. The difficulty of finding borrowers, at any time in the course of the existence of a society, is removed.

2dly. New members may enter in any month without paying up any arrears or increase of entrance fee. Hence, the scope of the society's action is extended, and the power, resulting from mutual association, of doing good, is greatly augmented, as the number of shareholders increases year by year, and even month by month, instead of diminishing.

3dly. The initial and annual expenses can be more equitably divided, and spread over a larger number of members.

4thly. A member may, under reasonable restrictions, withdraw his subscriptions, or effect the redemption of a mortgage, without the delay or expense, that he would experience in a terminating society.

5thly. The duration of members' subscriptions can be fixed with greater certainty.

57.—The system of a Permanent Building Society, which is most simple in its operations, may be explained as follows:—

The members are separated, as before, into two classes, Investors and Borrowers.

The investors pay a certain monthly subscription during a *fixed* number of years, calculated as sufficient for the realisation of their shares, at the end of which time the amount due is paid to them, and they secede from the association as far as such shares are concerned. The Investors represent the proprietors of a company. New members can enter at any time, and commence their subscriptions without paying up any arrears or any increase on the original entrance fee, whereas in terminating societies, the fee on entering is increased, without sufficient reason, year by year, until, from being originally only 2s. 6d., it is in some cases raised to six pounds per share. The duration of a membership is counted from the month of a member's first entrance. This causes every month a fresh series of members to be added to the society or new shares to be issued, so that, taking an example, if the term of membership were 10 years or 120 months, and 50 new shares on the average were taken up every month, there would, at the end of the first 10 years, be 6000 shares subscribed, supposing always that, if any were withdrawn, the average were kept up by an increase in the new comers. At the end of the first 120 months, or 10 years, 50 would be paid out, but as new members would come in, the number of subscribers would be undiminished, and month by month afterwards, as successive periods of 120 months were completed, old members would go out and new ones come in.

The Borrowers receive, at the time of obtaining an advance, the full amount of their shares without any deduction beyond a trifling commission, which is withheld as a contribution

towards the expenses and losses ; the loan is secured by a mortgage on the property purchased, and in return they pay, during an *optional fixed* number of years previously agreed upon, a suitable monthly subscription, by which the debt is liquidated with interest. The members, who become borrowers, *at once cease to be investors* in respect of the shares on which they obtain advances, and do not participate in any of the subsequent liabilities or expenses of the society, nor consequently in its profits, which in fact they anticipate by obtaining their loans at a moderate and definite rate. The general liabilities are provided for by taking, as the basis of the calculations, a higher rate of interest for the repayments, than is actually guaranteed to the investors for the realisation of their shares ; that is to say, if the amount of each share held by an investor, which is promised to him at the end of a fixed term of years, be equivalent to the accumulation of his subscriptions at $4\frac{1}{2}$ or 5 per cent. compound interest, the borrowers would nevertheless be charged about $6\frac{1}{2}$ or 7 per cent. This difference of 2 per cent. in the rate of interest obtained is temporarily withheld from the investors, in order to form a management and contingent fund, for the purpose of meeting the expenses and contingencies of loss on the mortgages. The customary commission, which is deducted from the loan, is proportionate to the number of years of its duration, and varies in amount with the local circumstances of the place in which the society is conducted. It is regulated by a table, where the advances are made by Rotation or the Ballot ; but in the case of the Bidding system, it is replaced by the premium bid per share. A borrower must have been previously an investor, but *immediately* after he borrows, he passes over from one class to the other, receiving then whatever amount is *due* to him on his *investing* shares, as arising from his *past* subscriptions, with interest thereon from the date of his first joining up to the time of his obtaining the advance. The repayments of the borrowers are for a fixed term of years, whatever

be the subsequent condition of the society, as it is not reasonable that, when they have once given good and sufficient security for a loan, they should be expected to share in the responsibility of future investments. This is one great improvement upon the old system, where the period of the subscriptions would depend on the future success or non-success of the association, or upon the contingency of any loss being sustained by it from other property mortgaged to other members—so that in many cases the repayments are extended over several years more than was expected by a borrower when he first effected his loan.

58.—As regards those members who remain investors, the system of periodically dividing a Bonus from the profits is adopted, which has been found so productive of safety and success to mutual Life Assurance companies. Instead of forestalling the society's profits, by reducing the monthly subscriptions of the investors to such a degree as barely to leave them sufficient, even theoretically speaking, to produce by accumulation the amount of the shares, the safer plan already alluded to is adopted, of keeping the subscriptions sufficiently high to be theoretically and practically adequate for the purposes. Any *surplus* profits, which may arise beyond the promised amount of the unadvanced shares, are periodically and proportionately divided among the investors in the shape of a Profit-Bonus to be paid to them, with the other sums due on the completion of the subscriptions upon each share. The Bonus system thus possesses very great advantages, inasmuch as it preserves to the society the possession of a reserve fund over which it has power, and whence any unexpected losses may be met.

59.—The borrowers of course are not entitled to participate in this Surplus-Bonus, as they have secured the equivalent by the manner in which they obtained their advances. This point appears, since the publication of the first Edition of this Treatise, to have been misunderstood, and several well-disposed

persons have exclaimed against an apparent disadvantage offered to borrowers by the new system. They should, however, have reflected that the borrower is in all cases, practically, equally well off, since by the very mode in which he obtains his loan, he secures at once the enjoyment of an *immediate* profit, which is still only *prospective* to the Investor. The money in hand is of at least as much advantage to the borrower as the deferred realisation of his shares can be to the subscriber, who has to wait to the end of his membership.

60.—In a permanent institution of this kind there will be little difficulty in obtaining borrowers, for the great objection disappears which is made against terminating societies:—*viz.*, that after a few years of their existence, the duration of a mortgage is too limited, and the loan-repayments too heavy, to suit the means of the class who are usually members. If the society be permanent, a member can at any time become a borrower, and yet have his advance for whatever period is most suited to his means, the amount of monthly payments required being less as the duration of the debt is extended.

61.—Again, since new members may come in at any time without paying up any arrears, the society will, if properly managed, continually receive a fresh accession of strength from new subscribers, and thus generally possess, at each meeting, funds sufficiently large to be capable of being invested without delay; whereas, it has been stated before as one of the difficulties in the old societies, that from their being comparatively confined in their action, the funds collected at a subscription meeting are frequently insufficient to meet the wants of any borrowing member, and are consequently left idle and unproductive of interest for, perhaps, some months, until by subsequent additions they amount to the sum required.

The permanent principle therefore possesses several elements, which tend materially to confirm the calculations founded on the *probability of a continuous realisation of interest*.

62.—It is, however, necessary and proper that a higher rate of interest should be charged, in determining the advance repayments, than the investors would be content to receive in return for the subscriptions contributed by them, in order that some margin may thus be provided for the various contingencies to which these societies are exposed. *These contingencies arise not from the Investors but from the Borrowers.* It is through the loans that losses are likely to be produced, and the borrowers should therefore pay sufficient interest to protect the investors from such casualties. As we have said before, the security offered to Benefit Building societies is one of much tendency to be of an unsound nature, and out of a large number of such investments, a few bad cases will always arise entailing loss. * By charging, however, a sufficiently high rate of interest from the borrowers, the annual receipts from that source may be made large enough, not only to meet the engagements in respect of interest on their subscriptions, which the society has contracted towards the investors, but also to cover any loss arising from bad security or other causes.

In societies formed for the purpose of purchasing or dealing with property, which does not consist of land, in or around London, or other large towns, a very fair plan is to take 7

* [We have, since the first Edition, met with a similar view of the principle involved, in the well-known *Catechisme de l'Economie Politique*, by the late distinguished J. B. Say, at page 181 of the fourth edition. The substance of his views is as follows: Capital is rendered available, by industrial enterprises, to produce an income under the name of interest. The interest or income from such a source should be separated into two parts. When a sum of money is lent at a much higher rate of interest than that of the public funds, say, at 6 per cent. per annum, only $3\frac{1}{2}$ or 4 per cent. (more or less) can be considered as the payment received from the borrower by way of rent for the hiring of the money. The remainder $2\frac{1}{2}$ or 2 per cent. (more or less) is to cover the extra risk existing in the investment, or is the Premium of Assurance at which the lender (acting as his own Assurer) can incur the chance of loss, to which he is exposed through making his advance upon a security, that is not of the first class.] (*See chapter further on respecting Emigration Societies.*)

per cent. rate of interest as the basis of the loan repayments, since even that rate is sufficiently low to enable a member to purchase a house on comparatively moderate terms, and in consequence of the greater opportunities for other investments, at apparently as high rates of interest, possessed by London residents, which they might consider more secure than house-mortgages, it would be nearly impossible to find lenders, or investors, if a lower rate were charged, as (supposing that the expenses, and losses which might arise, should absorb 2 per cent. off the rate of interest obtained) they would not clear more than 5 per cent. for their money.

63.—*Again; the Expenses, both initial and annual, can be more equitably divided over present and future shareholders.*

First, as regards the initial expenses, instead of their being defrayed by the first series of members, they can be charged as a debt against future as well as present subscribers, and be paid off by a certain fixed temporary deduction from the surplus profits of the society. The annual expenses will in a similar manner be borne by a much greater number of members, than is the case in associations formed on the terminating principle, with this one peculiar additional advantage, that year by year as the society progresses, until the close of the first period of the duration of the investors' shares, the number of contributors will increase, instead of diminishing. (*See Appendix Sec. 4 for further remarks on the rate of contribution, which it is equitable to require from the members.*)

64.—In permanent societies, any Borrower who may desire it, can, under certain practical restrictions, be permitted *to redeem his mortgage* on much more equitable terms than under the old system.

In a society of limited duration, if a borrower, or his family in case of his death, before the mortgage is cleared off, make application to pay off the remainder of the debt, a much larger sum is exacted, than would be required on a mere theoretical

view of the question, in consequence of the society no longer possessing opportunities of investment for any sum which may be returned on its hands, as the other members are unwilling to borrow, when the loan can only be obtained for a few years. So that a borrower, who wishes to clear off his mortgage before the close of the association, has to pay not only the net value of the remainder of his debt, but also some compensation for the loss of interest, which will be experienced in those years, during which the money thus returned will remain idle and unproductive in the hands of the society. Hence, instances constantly occur of amounts being required in redemption of a mortgage, which would be considered unfair and exorbitant, were it not for the peculiar circumstances of the case.

In a permanent association, on the contrary, as opportunities for investments abound, the directors would be ready to offer fair and reasonable terms for a redemption, in order to increase their power of encouraging the entry of new members by the prospect of an early advance.

65.—On the other hand *the Withdrawal of shares* by Investing members is greatly facilitated.

In terminating societies, persons who may desire to discontinue their membership, cannot do so without much difficulty and delay, because the money they have subscribed is engaged in the society's investments; and as few, if any, new members join after two or three years, the funds received from time to time can only with considerable restriction be paid out on withdrawing shares. Hence, it has been customary to inflict fines, varying from 5s. to £10 per share, on parties withdrawing. *This deduction is severely felt by the poor man, who, when endeavouring to save a few pounds, does not know at what time he may require them; and who from unforeseen

* [A member, who has given notice to withdraw, should not be made to participate in any loss, which may occur *subsequent* to the date of his notice.]

circumstances may desire to withdraw some portion of his subscriptions, as the only means of freeing himself from, perhaps, temporary difficulties. Yet, if withdrawals were permitted without restriction, a terminating society could never lend out the whole of the sums invested, as it might be called upon at any time to return an inconvenient portion of them. Consequently, in all the old Benefit Building societies, the rules attempt to provide against this difficulty by making it not easy to withdraw shares. Moreover, the societies themselves are injured by applications for withdrawal, which they cannot satisfy, as a feeling of distrust is excited which materially affects their subsequent operations. This inconvenience does not exist in the permanent plan, simply because new members continually enter, and there is always a floating balance sufficient to meet any applications for withdrawal within reasonable limits.

66.—The permanent system, described in the foregoing pages, will best be understood by a few examples taken from the rules of one of the societies, founded upon that principle, which has met with great success:—

“ The shares of Investing members are *£100 each, for
“ which the subscription is

13s. 0d. a month for 10 years or 120 months.			
or [10s. 0d.	„	12½	„ 150 „
8s. 4d.	„	14	„ 168 „]

“ They may, however, take half shares of £50, or quarter
“ shares of £25 each, if they prefer it. Investing members
“ can *withdraw* from the society, without fine, at any time *after*
“ the first year, when the amount of their subscriptions will
“ be returned, with interest, varying, according to the length
“ of time the member has subscribed, from 1 per cent. up to

* [In some cases £50, and even £25, would, perhaps, be the preferable amount of each share, as the smaller the sum subscribed, the less the amount of withdrawals.]

“ 6 per cent., according to the following table for whole
“ shares, and so in proportion for half and quarter shares, *viz.*,

Without Profits.	{	At the end of the first year . . .	£		
		„ 2 years . . .	.	.	.
		„ 3 „ . . .	.	.	.
		„ 4 „ . . .	.	.	.
		„ 5 „ . . .	.	.	.
		„ 6 „ . . .	.	.	.
		„ 7 „ . . .	.	.	.
		„ 8 „ . . .	.	.	.
		„ 9 „ . . .	.	.	.
“		At the last or 10th year” . . .	100	0	0

(With Profits in addition to the £100.)

“ Investors may, if they desire it, cease their future pay-
“ ments and leave their past subscriptions, as a Deposit
“ producing compound interest, to be received back in one
“ accumulated sum at the end of the term of their origi-
“ nally selected membership.” [The table being calculated
by the formula in Section 4 of the Appendix.]

“ Parties intending to borrow must, in order to qualify,
“ previously become members; and, at the time of borrowing,
“ they will be repaid the sum due for the past subscriptions
“ on their shares with interest, and then receive, as a loan, the
“ full amount of any number of shares they may require,
“ without any deduction, beyond a small commission, which
“ will be carried to the credit of a management and contin-
“ gent fund, to defray expenses, &c.

“ Loans, to the extent of £ , will be made to members
“ on security of real or leasehold estate, house or land, in any
“ part of England, for 5, 7, 10, 12, or 14 years, according as
“ they may prefer.

“ Example—* A member borrowing £100 on mortgage

* [The mortgage-deed must be for a term certain, as in the case of annuities secured upon property. It will be different from the ordinary deed of the Terminating Building Societies.]

“ will only be required to make the following repayments,
 “ including principal and interest, *viz.*—

“ If for 5 years	£2.	0.	8	monthly	or	£6.	5.	0	quarterly
„ 7	„	1.	11.	0	„	4.	15.	4	„
„ 10	„	1.	3.	9	„	3.	13.	1	„
„ 12	„	1.	1.	0	„	3.	4.	6	„
„ 14	„	0.	19.	1	„	2.	18.	9	„ ”

The repayments of the borrowers are calculated at 6 or 7 per cent. rate of interest, whether the loan be taken for 5, 7, 10, 12, or 14 years, and, although actually paid monthly or quarterly, they are regarded in the calculation as made *yearly* and at the *end* of each year. This creates but a slight augmentation in the amount of the periodic repayments, and yet tends materially to increase the safety of the basis on which such a society is founded.

“ The amount of commission deducted is what a careful
 “ examination of the expenses and losses of other similar
 “ institutions has shewn to be necessary and sufficient.” (*See the Rules in this Treatise.*)

“ The *surplus* profits of the society, (over and above the
 “ promised amount of the unadvanced shares,) will be ascer-
 “ tained yearly by an Actuary, and be apportioned, *two-thirds*
 “ to the credit of the investors, to be paid to them as a Bonus
 “ at the termination of their 10 years membership; the *other*
 “ *third* to be carried to the credit of a Permanent guarantee
 “ fund, formed to meet any loss which may arise. This pro-
 “ portion in the division of surplus profits will, however, be
 “ varied as may be considered advisable, after the expiration
 “ of the first nine years of the society’s existence.

“ There will be no loss from bidding. Should there be
 “ more applicants for advances than can be supplied at one
 “ time, priority will be settled by ballot, (or rotation.)

“ The receipts arising from the entrance fees, fines, &c., will
 “ all be carried to the credit of the management and contingent
 “ fund, out of which the different expenses will be defrayed.

“ As an example of the working of this society :—Sup-
 “ pose a person desires to purchase a house for £300, which
 “ would return a *net rental* of £30 per annum, and that he
 “ has been an investing member one year before he applies
 “ for the advance. He must hold 3 shares to borrow £300;
 “ and in this example we will suppose that he has paid one
 “ year’s subscriptions on each of the 3 shares.

“ By the table of withdrawals he is entitled to 3
 “ times £7. 16s 0d., or £23 8s. 0d., in return for his past
 “ subscriptions. This sum he receives, at once, if he desire
 “ it, with the £300, and, ceasing to be an Investor, he
 “ borrows the £300 on the terms of the table of repay-
 “ ments (page 63) for Loans, for which only he gives
 “ security.

“ If he effect this Loan for 10 years, his re-payments,
 “ including principal and interest, will be, £3. 11s. 3d.
 “ a month or annually £42 15 0
 “ Multiplied by 10 years 10

“ Making the total re-payments . . . £427 10 0
 “ Deduct 10 years’ rent (paid or received) £300 0 0

“ Leaving the cost, as far as the Benefit

“ Building society is concerned, . . . £127 10 0
 “ For which sum the member has thus secured to his family
 “ a house, free of rent for the remainder of its lease. The
 “ above example is for 10 years. The purchase, however,
 “ may be effected by smaller annual payments, if the Loan
 “ be taken out for 12 or 14 years.”

“ The deduction for commission, and the law expenses, must
 “ be provided for from the £23. 8s. or other private source.
 “ They of course add to the expenses of the purchase, but it

“ *should be remembered that the payments of the borrowers can in no way be increased or extended beyond the specified period for which the loan is taken, as is the case in the old societies.* ”

“ Taking an example from one of them whose shares are £120, upon which, in the first year, a borrower would receive only about £55 in cash, and occasionally much less, he would be required to pay 14s. per month per share, or 8*l.* 8*s.* 0*d.* per annum, until the close of the society, which is more likely to extend to 14, or even 16 years, than to terminate in 10 years; but, confining the question to 10 years, in order to obtain a loan for £300, he would have to pay a subscription upon five and a half shares, amounting to 46*l.* 4*s.* 0*d.* a-year; whereas, in this society, it would cost only 42*l.* 15*s.* 0*d.* ”

67.—In the permanent plan just described, the period of the Investors' subscriptions may be 10, 12, or 14 years, or even longer or shorter without affecting the principle. Either would answer equally well, and the result would be the same to an Investor whatever term were adopted, if the basis of the subscriptions were upon the same rate of interest. We should recommend, however, that to avoid complication, in no society should the investors have more than one or two periods for the realisation of the unadvanced shares, and their monthly subscriptions should not be less, than what would be required to produce them by accumulation in the stated time, at 4½ or 5 per cent. compound yearly interest. Although it is not possible, a priori, to estimate the amount of *surplus* profit, which will remain at the end of each period, when the expenses and any losses that may occur have been provided for, yet it is reasonable to expect, that if the society be carefully managed, each investor will receive a Bonus in addition to the originally promised amount of his share. What that Bonus will be must depend on the success of the association, and every member will,

therefore, find it to his advantage to add his individual efforts in promoting its prosperity. It will be satisfactory to reflect, that the Management and Contingent Fund will be amply adequate for its purpose, since it will include not only the entrance fees, fines, and commission deducted from the loans at the time of an advance, but, moreover, a fluctuating reserve on each £100 share, arising from the circumstance, that the annual subscriptions paid by an investing member, *viz.*, 13s. a month or 7l. 16s. 0d. a year, are invested at 7 per cent. compound interest, and in the case of its being realised monthly, the reserve in 10 years would be as high as £11 per share.—(*See Section IV. Appendix.*)

68.—We will conclude this Chapter by suggesting an improvement in the pecuniary position of the Borrowers, by which greater facilities will be afforded to them to realise benefit from Advances. It is well known, that, for the first year after his purchase, a borrower is, in most cases, scarcely able to complete the necessary arrangements connected with the furnishing his house, &c.; and he experiences some difficulty in providing for the increased payments, which begin at the end of a month from the time of his obtaining a loan. The original object of Benefit Building societies, *viz.*, to enable the industrious poor to become possessors of their homes, would be accomplished, with greater certainty and less inconvenience to the parties concerned, if the monthly repayments upon advances did not begin for a year after the same had been granted. The borrower would thus have time to look about him and to settle comfortably in his purchase; and the society would merely have the repayments deferred for one year, or for whatever other time might be agreed upon. It is true, however, that for the association to be properly protected, collateral security, personal or otherwise, should, perhaps, be required during the time which is allowed before the repayments commence. In the Appendix the formula is given for the rate of contribution suitable for a loan so granted.

CHAPTER V.

THE PRACTICAL MANAGEMENT OF A BENEFIT BUILDING SOCIETY.

ART. 69.—After recommending the adoption of the Permanent instead of the Terminating principle, in the formation of future Benefit Building societies, it may not be out of place to add a few remarks, relative to their subsequent practical management, some of which also apply to the other institutions considered in this Treatise.

At the commencement, great care ought to be exercised in the judicious selection of suitable persons as officers. The most important of these are undoubtedly the *Solicitor* and *Surveyor*, from their influence, for good or evil, on the operations of the society; for it is upon their testimony respecting the soundness and adequacy of the security offered for an investment, that its safety and prosperity entirely depend.

When a member is desirous of purchasing a house, or other similar property, he makes application to the directors, who instruct the surveyor to examine and report on the nature, position, and value of the proposed purchase. If these be satisfactory, they then direct the solicitor to examine into the right of sale or title which the seller possesses. Should this also prove unexceptionable, the money is advanced for the purchase, its repayment being secured by a mortgage on the property for an agreed term of years. Let us now examine the position of the Benefit Building society with respect to this investment.

If, at some subsequent time, before the mortgage is cleared off, the borrower were to discontinue his payments, the society

would be under the necessity of seizing the property and reselling it, in order to recover the remaining amount yet due to it. Thence would arise various chances of loss.

It may happen that the locality in which the property is situated may have diminished in public estimation, as is frequently the case with many parts of London and other large towns; or the necessary repairs to which any new Purchaser would be exposed, if they have been neglected by the late occupier, might be found too heavy. Perhaps by a wilful mis-statement or an error in judgment on the part of the surveyor, the house may have been estimated at more than its real value; or, lastly, some defect in the original title may be discovered. In any one of these cases an attempt to resell the property would occasion loss.

70.—Now these contingencies may in a great measure be averted by the selection of careful and respectable officers.

1st. As regards the SOLICITOR, who examines the title to the property. This branch of law business, which is technically termed “conveyancing,” is one of great intricacy and difficulty, and requires peculiar skill and experience in the person who undertakes it. The title-deeds to property are often much involved, or present flaws and deficiencies, which can only be detected by the most searching and patient inquiry. On the other hand the prosperity of a Building society, the security of its investing members during the continuance of a mortgage, and the subsequent undisturbed enjoyment by the borrower of the property purchased, depend solely and entirely upon the validity of these titles, and the correct appreciation of the property which they represent.

For these reasons, the election of a competent solicitor is one of the most important duties which belong to the directors of the society.

The person chosen should possess both experience and talent; he should be a man of integrity and firm principle, incapable alike of being influenced by motives of interest or

feelings of private friendship; and, besides these indispensable qualifications, he should, if possible, in common with the other officers of the society, be possessed of a good connection.

71.—To secure the services of a person thus qualified, an adequate and liberal remuneration must be offered, instead of the insufficient fees, which have hitherto been often tendered by Building societies to their solicitors. The recompense should be proportionate not only to the actual value of the work done, but also to the heavy responsibility attached to the office which they hold; for, should the society sustain any loss through the inaptitude or carelessness of its solicitor, he is legally bound to make good the deficiency. An example of this is reported in *The Times* newspaper of the 12th of April 1842, containing a trial at the Liverpool Assizes, of an action brought by the Trustees of a Benefit Building society against the solicitors employed in preparing the mortgage deed to the society, for a sum of £1,350 lent to a shareholder. It appeared that the property intended to be mortgaged was freehold, and that the solicitors had, by some oversight, omitted to obtain the assignment of an “attendant term;” by which means, when it became necessary to proceed to a sale of the property, in consequence of the non-payment of the subscriptions due from the shareholder, it was found that the mortgage was useless for that purpose. The society, therefore, brought their action against the solicitors to recover the money, which had been advanced on the faith of their taking a proper security. The jury gave a verdict for the society (the plaintiffs) for £1,350. The counsel for the Building society, in his address to the jury, stated, in reference to the profession of a solicitor, that—“No profession was of more importance to society; none exercised a wider influence. Every man’s property was at their mercy; and on their skill and integrity every one relied.”

72.—Besides the necessity of offering an ample remuneration to the solicitor of a Building society, it is also essential

that the amount of his fees, whatever it be, should be fixed before hand, at the time of his election to the office.

73.—2ndly. The SURVEYOR of the society stands next in importance to the solicitor, his duties being attended with great difficulties, and considerable experience and judgment being requisite to enable him to form anything approaching to an accurate estimate of the pecuniary value of property.

This value will depend on several varying conditions. The tenure by which the property is held may be freehold, copyhold, or leasehold; in the latter case the number of years yet unexpired in the lease must be taken into consideration. The neighbourhood in which the property is situated may be likely to rise or fall in public opinion. Any estimate, calculated on the amount of rent actually paid, is little to be trusted, as attempts are not unfrequently made to mislead the surveyor, by letting the property at a nominal rent much larger than is actually paid for it.

The surveyor, therefore, must not only be able to estimate the materials and cost of erection, but he must be well acquainted with the locality in which he is employed, and he must have sufficient experience to enable him to detect the artifices, by which the vendors of property endeavour to exaggerate its value.

The false estimates, which are sometimes productive of so much loss to Building societies, are not always the fruits of incapacity or inexperience. Cases have occurred of compacts between the surveyor and the vendor or the purchaser of property, or even some officer of the society, to share between themselves the profits of an unfair valuation.

To guard against the possibility of such fraudulent practices as these, a man of high moral integrity should be chosen; and he should, as well as the solicitor, be liberally remunerated for his services.

74.—Several expedients have been adopted, with the view

of obtaining a check on the estimates of the surveyors of Benefit Building societies. It has been recommended that they should be paid out of the ordinary funds of the society, instead of by the borrowing members individually, so as to destroy any reciprocity of action or feeling between them and the mortgagors of property. Some societies appoint a survey committee to act as a check between the surveyor and purchaser, and a regulation has been proposed to prevent any subsequent transfer of property, from a member to the surveyor, or to any individual of the survey committee. All these may be useful as auxiliary measures, but the necessity for them will be much diminished by a previous examination into the character of the person employed.

75.—3rdly. The MANAGER.—We have placed the Solicitor and the Surveyor of a society first in importance on the list of its officers, because we believe that, provided they are unexceptionable, and the manager be an honest, intelligent, and active man, little more is wanting to carry on with advantage an institution formed on a correct basis as regards its rates of subscription. It is, however, essential that any person proposed as a manager should be thoroughly acquainted with the fundamental principles of compound interest, and the practice of tables relating thereto. Much mischief and inequitable dealing has occurred in several of the existing societies, from the ignorance of their managers on that subject; and it were well if some regulation were enforced, requiring that every person, who intends to become the manager of an association in which the savings of the poor are engaged, should first obtain from competent persons a certificate of his qualifications for the office. Since not a little depends on the zeal and attention with which the manager performs his duties, it is but reasonable that he should be paid as his exertions demand. Experience has long shewn that it is a sorry and false economy, not to give an adequate remuneration to men, who superintend the affairs of important institutions.

76.—One duty of the manager must specially be mentioned. He should make himself perfectly master of the Rules of the society, and the bearing of each clause upon the various matters of business, which he will have to submit, from time to time, to the Board of Directors at their periodic meetings. It cannot be expected that the Trustees or Directors should be as cognizant as their deputy of the practical effect of regulations, which they only meet at intervals to carry out; the responsibility therefore rests, very properly, on the manager; and he should be aware of the duties of his office, otherwise his society may fall into those positions of difficulty and even litigation, from the influence of which many of the older institutions are now suffering.

77.—4thly. The AUDITORS of the society occupy also very responsible situations. The members entirely rely upon their careful examination, from time to time, of the accounts and balance sheets. Not only is it their duty to see that correct vouchers are produced corresponding to the items of expenses or receipts, but they should examine strictly into the formation of the annual or more frequent balance sheet, purporting to shew the pecuniary position of the society at the time of audit. Upon the faith of the statements contained in these balance sheets, it is customary for the directors of the institution to found their report of its progress. By erroneously placing sums to the credit of profit, which are not such in reality, subsequent loss has been created. [*See the following Chapter.*] For this reason it is of urgent necessity, that the auditors should be careful and experienced persons, well versed in the practice of book-keeping and the calculation of interest.

78.—5thly. The ARBITRATORS.—By the 27th section of the statute 10 Geo. IV., cap. 56, respecting Friendly Societies, which has been extended, in the Act of 1836, to Benefit Building Societies, members of these latter institutions are entitled to demand Arbitrators, by whom all disputes shall

be settled, and whose award is to be final on any matters referred to them. If the society do not, within 40 days after application from a member, who considers himself aggrieved, appoint such arbitrators to investigate his case, he may submit the matter to any two justices of the peace, who are empowered to give a decision, by which the society will be bound.

79.—The TRUSTEES of the society, though last on our list, in reality are the most prominent, if not the most active of its officers. We may judge of this, from the fact of their names being so frequently paraded as evidence to the public of the general respectability of the association, and from the popular impression that they are numbered amongst its responsible officials. The high and recognized standing of many trustees leads us to wonder at the readiness with which they accord their names to uncertain schemes, and at their being so unmindful of the injury caused by such imprudence to the public at large. [*See Art. 42, page 33.*] To correct this evil, a knowledge of the usual duties of their position, we are confident, alone is necessary. A slight degree of watchfulness, exercised in a properly constituted association, will protect them from sharing in the reprehension that otherwise would justly be their award. As trustees of the society they should insist upon a strict adherence to the Rules established for its government, and also * upon security being given by those officers, who act as recipients of the members' money.

* [Benefit Building Societies, we are told in this work, which may be considered the grammar of the system, are mainly intended for the benefit of persons of very moderate means; and yet their cash transactions are not upon the footing of that public respectability, which gives security, as for instance, in a bank. This is the first point to be considered; for even the wild miscalculations pointed out in some Terminating Societies will merely involve partial loss, or carry on their duration beyond the period specified. There must be security for the intrusions of those who are in any way concerned in handling the money of the company, or the wisdom with which the plan may be conceived will be no guarantee against ruinous loss. [*Chambers's Edinburgh Journal—Extract from Review of First Edition.*]

80.—Turning from the officers of the society to the details of its practical working, we shall next examine several points respecting which there is considerable difference of opinion, even among persons who are most experienced in building society transactions.

With reference to the mode of granting advances to members, when there are applications for loans exceeding the amount of money which can be lent, three plans exist; *viz.* : either by *Bidding*, *Rotation* (that is seniority on the list of applicants), or by *Ballot*. The two first appear to present more objections than the third, although it is extremely difficult to decide, what system can be adopted as likely to be entirely free from inconvenience.

81.—The plan of determining by *Bidding* who is to have the preference for an advance, consists in putting the sum proposed to be lent, up to auction among the members, and in finally allotting it to that person who offers the highest discount for it. This may be explained by an example :—In a 10 years society, suppose there is a certain sum ready to be advanced. The chairman puts up, say, one share of £120, and enquires what discount will be allowed for it. The members present hand in written biddings to him, and he declares the highest discount offered; upon which the bidding is commenced a second time and the result is again declared; and, finally, a third trial is made, and the advance is allotted to that member who has offered the largest discount. By this plan, members who had no intention to borrow, have had the power of raising the discount offered, by bidding during the first and second trials and abstaining the third time; the profits derived by the non-borrowers increasing with the magnitude of the discount obtained. An attempt has been made to remove this objection by causing the biddings to be made by word of mouth, as at a public auction, and by only allowing one trial. The system of bidding, however, may still cause borrowing members to obtain advances on most unequitable terms,

unless a limit be placed to the price, which they can offer. Cases continually occur, where discounts, for £120 shares, are given as high as £70 and even £80 in the first year. By this means the borrower receives only £50, or even £40, at the beginning, in lieu of £120, the full amount of his share at the end of the society. And, as he has to pay 14*s.* a month for 10 years, or 8*l.* 8*s.* 0*d.* a year, his advance costs him considerably over 10 per cent. rate of interest.

82.—It is proper to state, that in the country there exist many associations in which an error of the opposite extreme is committed, through a desire to make the effect of bidding less onerous upon the Borrower. We allude to the cases where the premium to be given is limited to a small per centage on each share, and the Borrower is allowed to pay it in instalments over a period of years. This is disadvantageous, as it delays the realisation of profit, which the society would otherwise experience, and does not prevent the member from still imagining that he is paying considerably for his loan. There is no doubt that it is expedient, for this and other reasons, to deduct the premium at once from the amount of the share advanced.

83.—Between the Rotation or Seniority system, and Balloting, it is difficult to make a choice. By the first a member puts his name down on the list of applicants, and waits his turn for an advance. If the society has been some months in existence, when he joins or wishes to borrow, he may have to wait a considerable time before he obtains the loan he desires.

84.—By the *Balloting* plan, the names of all the applicants are placed together in a ballot-box, and one is drawn out by lot, to whom preference is given. To this last arrangement the modern societies seem to incline, because, without the enormous losses consequent on the *Bidding* system, and the delay certain to attend that by *Rotation*, each of the borrowing members individually has a chance of being fortunate enough to obtain the first right to an advance.

As the names are drawn out of the ballot-box a list is formed in the order of which the loans are to be granted. If there be not money enough to suit all the applicants at once, those members whose names remain on the list have preference at the next advance before any subsequent ballot, provided they have been six months in the society.

85.—It has been lately imagined that the system of Balloting is not legal, inasmuch as it might be considered a species of lottery. Such an impression is entirely without foundation, since the ballot is merely introduced in a permanent Building Society for the simple purpose of collecting for an individual preference the names of the members, who desire to become borrowers and receive advances, for which each and all have to pay after the same rate of subscription and interest; no favour in respect of repayment being obtained by any. The ordinary lotteries were very properly prohibited from very different motives, because they encouraged a system of gambling, by which one man was made rich, while his less fortunate rivals became impoverished. No analogy exists between the two cases.

86.—If the Bidding or Rotation plan be preferred, there would be found no difficulty in applying either to a permanent Building Society, but a clause should be introduced to obviate too great improvidence of competing borrowers in the former case, or the disheartening delay of the latter system.

87.—In *the general conduct* of the society it ought to be borne in mind, that, at its commencement, a liberal yet careful outlay is requisite, to give due publicity to its principles in the districts over which its operations are proposed to extend. The preliminary expenses may perhaps be large in amount, but where they have been judiciously incurred, they are sure to be amply repaid by the future extent and importance of the institution. In order to effect legitimately and advantageously the main object of Benefit Building societies, care should be taken that the personal interests of no individual member are sacrificed by the adoption of any unjust regula-

tions, which may have been introduced for the special advantage of another. As the chief aim is to provide a home for those, who otherwise might not be in circumstances to obtain it, the amount of available funds during each year should be so apportioned as to supply the greatest possible number with advances. Where a member has pecuniary means of his own, he ought readily to apply it towards part of his purchase, so that his less fortunate neighbour may participate to the fullest extent in the assistance which the society can afford him.

Again, there is in general less spirit of speculation on the part of a borrower, who intends to occupy the house himself which he desires to buy, and it is found by experience that more substantial property is offered for security in such cases.

88.—It is desirable that no meeting of the society should ever be held at any tavern or public house. The members may save much money by the adoption of this rule. They may do more: they may deliver themselves from the temptation to form habits of intemperance and useless expenditure, which, to view them in no worse light, well nigh counterbalance all the advantages to be derived from these institutions.

89.—*The Rules* should be framed by persons well versed in the principles and practice of Benefit Building Societies, so that the advantages of both sound and new features may be secured. All such provisions, as experience has proved to be productive of loss or inconvenience, must be excluded. The set of rules in this work are applicable to the proposed permanent plan, which we have prepared of a Building society, and may be adapted to the circumstances of particular localities. They have been carefully modified in this edition by the results of uninterrupted experience, and by valuable suggestions communicated by the certifying Barrister; and we recommend them as providing a sound basis for any society, although we are far from believing, that they should be adopted, without modification, as fitted to every part of the country.

[See Chapter VII.]

90.—The promoters of new societies should carefully abstain from engrafting corrections upon the draft rules in question, which their inexperience may prevent them from perceiving, might have the effect of utterly destroying the connected link of principles by which the various clauses hinge upon each other. That this caution is not unnecessary, we may mention, by way of anecdote, that one of the most flourishing societies at present in Middlesex, had to go through the expensive operation of a revision and fresh registration of its clauses, after a great number of copies of its prospectuses and rules had been printed ready for circulation. This arose from the promoters having adopted the general characteristics of the set of rules given in the first edition, upon which they had made such fanciful alterations, that the system in their hands became a chapter of inconsistency; and they were put to that expense in retracing their steps, which in great measure might have been obviated by a more legitimate proceeding at first.

91.—In conclusion, a few amendments may be mentioned, which have been the subject of discussion lately, with a view to remedy the uncertainty that is caused by imperfections in the existing Act of Parliament on the points involved.

It is contemplated :—

1st.—That an annual Report of each society, examined by an actuary, should be required to be deposited with the Certifying barrister, so that the members may be protected from errors of mismanagement.

2nd.—That Advances may be made by Building Societies on lands of any tenure whatever, with, or without, personal security collaterally.

3rd.—That Mortgages for advances, exceeding £150, may be specially allowed, so as to remove the doubts, which have been caused by certain observations of the judges in a recent case.—[*See Chapter on the Law of Building Societies.*]

4th.—That the Interest chargeable in the repayments of

borrowers should be limited, so that a check may be put to the usurious terms exacted in many of the old societies.

5th.—That the Repayments of borrowers in societies, established upon the *Terminating* principle, should be invariably limited to the period of years, which they were informed would be requisite, in the prospectus or otherwise, at the time of their taking the advance ;—and, that the Redemption of Mortgages should, in all cases, be estimated with reference to the *present value* of the unliquidated annual repayments, and not with reference to the amount of money secured in the mortgage deed. The said calculation being submitted, if required by the borrower, to an Actuary of a Life Assurance Office.

6th.—That facilities should be afforded for Converting a Terminating Building Society into a permanent institution, on such a principle as we have recommended throughout this work.

7th.—That a public Registry should be kept of all mortgages from Building Societies ; with both the date when the borrower obtained an advance, and when his property is released from mortgage.

8th.—That it should be imperative upon the Directors of all Building Societies, to certify to the Registrar of Friendly Societies, the appointment, resignation, removal, or change of any of the *Trustees* ; so as to obviate the difficulties, which, under the present system, may arise, in future years, to the purchasers of property.

9th.—That the directors may have power to borrow money (with the view of expediting the granting of advances,) by Debentures, bearing interest payable half-yearly, preferentially secured upon the shares or property of the Society.

Other points will be found referred to in the legal chapter.

CHAPTER VI.

THE BALANCE SHEETS OF BENEFIT BUILDING SOCIETIES.

ART. 92.—We have mentioned before, that it is customary for all Building societies to produce once a year at least, a balance sheet relative to the state of their pecuniary affairs, which is certified by the auditors as correct, and generally concludes with an estimate of the improvement in the value of the shares, attained by the operations of the preceding year. It is evidently of the greatest importance, that such statements should be accurate, for, if a fictitious amount of profit be declared, the directors, not being aware of the error, are induced to make a corresponding augmentation in the entrance fee, to be required from any one, who may subsequently desire to join the society, and to participate in the supposed profits; the effect of which would be to deter persons from entering, and the scope of the association would be curtailed. The existing members also would conceive a false impression respecting the pecuniary value of their shares; and, if any of them should desire to withdraw from the society before its termination, they would expect, and the directors might be led to pay to them, a premium equivalent to the profit declared, which, if it be overated, must be prejudicial to the interests of the general body of shareholders. Considerable sums are in this manner frequently paid away in the early stages of societies under the name of bonus, which create an irreparable deficiency in the accumulated funds at the epoch of their intended termination. In a variety of cases, which have come before our notice, this mischievous circumstance has occurred, and has been found to have pro-

duced a most unfavourable effect on their financial position.* Moreover, many members who might be disposed to seek for advances, imagine that, if so large a profit can be made so soon, they surely would have to pay too high a rate of interest for the loan desired. They become consequently dissatisfied, and do not borrow. The pernicious effect of these erroneous estimates is, also, not confined to the members of the society, in which they occur. The false experience and superficial success, thus created, is quoted by the promoters of new associations formed on the same scheme, and serves both as an excuse for copying it with all the errors it may contain, without further inquiry into its safety or practicability, and also as a means of attracting members eager to participate in similar advantages.

93.—Such are the evil consequences attending an inaccurate statement of the position of a society at the end of any year; and, yet, in but few instances are the Balance sheets free from mistakes equally important with those, which are found in the rules and rates of subscription.

The main source of error consists in the practice of inserting the whole nominal amount of a share, for instance £120, as having been lent in cash to a borrowing member, when probably he has only received £55 or £60. This is obviously incorrect, since it matters not what is the nominal value of the share, but merely what present sum in money has actually been advanced upon it, in lieu of the full amount, which the shareholder would otherwise be entitled to claim at the close of the society, and for which advance he has to pay a monthly annuity for a certain number of years.

94.—In general, the only profit, which can be apparent in the annual statements, is that resulting from the *interest* already

* The case is similar in its effect to that of a bankrupt tradesman, whose assets would enable him to pay 15s. in the pound to his creditors, but who, by giving 20s. to some of them at first, leaves but 10s. in the pound to those who are paid afterwards

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obtained through investing the subscriptions in loans; and, as such, is merely what was assumed as probable in the fundamental calculations. By the accumulations of interest, year by year, the expected amount of the shares can alone be realised, and the yearly profit thus produced is not a matter of congratulation, as if it were unexpected, but simply the means, by which the suppositions, forming the basis of the society, are rendered true. Hence, if profit at the end of any year be shewn, it cannot be carried to the credit of any but the *investing* or non-borrowing members, who are making their monthly payments in the hope of receiving, at the end of a certain number of years, the promised accumulation of their subscriptions and compound interest thereon, which together are represented by the shares they hold. The borrowers having cancelled their shares by the loans obtained, are not interested in, or entitled to, any portion of the profit or interest realised.

95.—The question, however, may be said to present some difficulty of conviction, as it is frequently objected by Borrowers, that, whereas in a Terminating Society, they are exposed to participate in any losses, which may affect its duration, it would be but fair that they should also share in the pecuniary prosperity of the association. To this, which is but another proof of the evil of high-flown balance sheets, it can be only answered, that, as they have received their shares in advance, and frequently on very favourable terms, they should not afterwards claim a part of the profits, by which alone the non-borrowers can expect to receive an advantage from the society equivalent to that already secured by the borrowers. Moreover, practically, the Borrowers are greatly benefited, in the end, by a *new* participation in the annual profits; inasmuch, as the more rapidly the unadvanced shares improve in value, *or* progress towards completion, the sooner will the society arrive at its termination, and the sooner they will be entitled to *cease* their payments, and to have their deeds returned *to* them *undorsed* with the usual receipt.

96.—The plan, hitherto adopted, of making a Balance sheet serve to give an estimate of the profit annually realised on the shares, is productive of the greatest confusion. The terms Dr. and Cr. tend to mislead, if the figures under their head are considered relative to profit or loss experienced. A balance sheet merely supplies information as to the items of money received, and the mode in which such receipts have been disposed of. It can express no opinion, as to whether any advantage or disadvantage has been derived from the way in which the money has been laid out, but simply conveys the facts as they have occurred; and, as such, it is useful and necessary for the protection of the shareholders, because it shews clearly how the pecuniary affairs of the association are managed. In the other point of view it is not of much value, as something more is required, than a mere statement of money received and money spent or invested, to attain a satisfactory knowledge of the position of the society, as regards profit or loss incurred. When the Auditors see under the head of Cr. a heavy item for expenses of management, it does not occur to them that so much money is sunk and gone from the society for ever; the money is accounted for, that is all.

97.—To arrive effectually at the actual value of the shares, an annual valuation of quite a different character should be made, on the same plan as that adopted by Life Assurance companies; by which, not only the sums received, and then invested or spent, or paid out on withdrawal, are considered; but the *present value* also is estimated of the profit to be expected from the advantageous nature of the society's investments in the advances to the borrowers, relatively with the *present value* of its engagements in respect to the shares held by non-borrowers. This is not the business of a mere balance sheet, but must be effected by a correct mathematical calculation, in which the expected duration of the subscriptions, and the interest actually realised, are taken into account.

98.—This distinction has been overlooked by several writers

in periodicals treating of this subject, who, in reviewing balance sheets, appear to believe, that in order to ascertain correctly the yearly profit or loss of a society, it is sufficient to form a profit and loss account, placing on the one side the various items of receipts from entrance fees, redemption fees, fines, &c., and on the other side the expenses, and to consider the balance, whichever it be, profit or loss, as representing the true value of the shares. The same rule being applied indiscriminately to every description of Benefit Building society, without any reference to the essential consideration, as to whether the rates of investors' subscriptions or borrowers' repayments are adequate to the originally promised results. The members, however, can feel no security, respecting the actual progress of the society and their own future liabilities, unless an accurate estimate of the profit and loss experienced by it be made from time to time; and we would strongly impress upon them the necessity of insisting on the production at the annual meetings, of a complete valuation of the position of the society to that date, distinct from the ordinary balance sheet.—[*See Schedule C, page 93.*]

99.—Having mentioned the correct method, which ought to be adopted, we will proceed to give three specimens of balance sheets taken at random from a number of similar reports, for the purpose of shewing how they have hitherto been prepared; and to draw attention to the injurious effect of exaggerated declarations of profit.

100.—It is essential to bear in mind that the mischief, produced by an erroneous view of the profits of the society, is even more serious in the earlier stage of its existence than afterwards, as the loss created by paying away money in the shape of Bonus to persons withdrawing, is increased with the number of years yet remaining of the proposed duration of the association. For example, suppose £500 be declared by way of Profit at the end of the 3d year of a 13 years society, which is realizing an average rate of interest of 7 per cent.;

since money doubles at 7 per cent. in 10 years, the £500 profit, if paid away when declared, would cause a deficiency of £1000 at the end. As no evil is, generally, without a remedy, so immediate steps may serve to restore the association to its sound position. We would, therefore, urge upon the Directors of all such societies to have their last balance sheet carefully re-adjusted, and the basis of their subsequent statements settled upon correct and intelligible principles. The matter presents comparatively little difficulty, and a downward course of injudicious payment of supposed profit out of capital may be stayed. They would thus be enabled not only to ascertain satisfactorily, from time to time, the precise value of the unadvanced shares, but also to determine the probable duration of the borrowers' mortgage-repayments; a point in itself of vital importance to that responsible class of members.

BALANCE SHEETS.

No. 1.

Extract from the first report of the ——— Society. Shares, £120; monthly subscriptions, 10s. per share (see page 33):—

“The directors have to congratulate the members on the success which has attended the operations of the society during the past year—a success which verifies the correctness of the prospectus issued at its formation.

“The balance sheet shews the superior advantage of building societies over other modes of investment; for if the amount received had been placed—say in a savings' bank, the profit would have been about £43., or 1s. 10½d. per share; while by the legitimate operations of the society, the profit secured has amounted to 2738l. 18s. 8d., or 6l. 0s. 9½d. on the £6 per share paid,—making the present value 12l. 0s. 9½d.”

Copy of the balance sheet annexed to the report, given verbatim:—

“Dr.

Entrance money	£70	2	6
Subscriptions in advance.....	1	0	0
Subscriptions for twelve months.....	2530	10	0
Forfeited shares	2	0	0
Fines	12	1	0
Transfers	9	5	0

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Postage	2 11 0		
Interest	21 12 10		
		<u>2640</u>	2 4
Premiums (or discount) on 33 (£120) shares taken up	1916 5 0		
Premiums on 12½ shares not taken up, but for which the society has funds.....	764 10 0		
		<u>2680</u>	15 0

"Arrears:

Subscriptions.....	190 10 0		
Fines	17 16 0		
Interest	2 0 0		
Postage	1 1 6		
		<u>211</u>	7 6
		<u>£5541</u>	4 10

"Cr.

By formation expenses, including enrolment of rules, and deed boxes	£25 14 2		
Manager's salary	50 0 0		
Postage	5 12 0		
		<u>81</u>	6 2
By mortgaged property	480 0 0		
" "	240 0 0		
" "	240 0 0		
" "	2040 0 0		
" "	960 0 0		
	<u>3960</u>	0 0	
By arrears of subscription	£211 7 6		
Premiums	764 10 0		
Cash at bankers	524 0 10		
Cash in manager's hands.....	0 0 4		
	<u>1499</u>	18 8	
		<u>5459</u>	18 8
		<u>£5541</u>	4 10

To balance in favour of the society

brought down.....	£5459 18 8		
Deduct subscriptions on 453½ shares, at £6 per share.....	2721 0 0		
	<u>£2738</u>	18 8	= to 6 0 9½ per share
Net profit realised		Cash paid	6 0 0
		<u>£12</u>	0 9½"

The directors, in the above, congratulate the members on the success of the society, which they affirm is manifested by the profit, 6*l.* 0*s.* 9½*d.* per share, realized in one year beyond the £6 year's subscription paid, a result equivalent to more than 100 per cent. interest for the money.

This statement is, however, not correct; and the error arises from the *whole nominal amount* of the 33 *advanced* shares, or £3960, being entered to the Cr. as having been lent on mortgage, whereas in reality the *difference* 2043*l.* 15*s.* 0*d.*, (between £3960 and the *discount* or *premiums* 1916*l.* 5*s.* 0*d.* given by the borrowers for the loan) is all that has been advanced. Moreover, the item 764*l.* 10*s.* 0*d.*, respecting the shares *not taken* up, but for which premiums have nominally been given, has obviously nothing to do with the business of the *past* year, and ought not to have appeared in the balance sheet.

These considerations change the result :—The following is a copy of the preceding balance sheet, arranged as it *should* be; *viz.*: by placing only the money *actually received* or due for arrears on the one side, and the money *actually paid* on the other.

<i>“ Dr.</i>		
Entrance money	£70 2 6	
Subscriptions in advance.....	1 0 0	
Subscriptions for twelve months.....	2530 10 0	
Forfeited shares	2 0 0	
Fines	12 1 0	
Transfers	9 5 0	
Postage (received from members).....	2 11 0	
Interest	21 12 10	
	<hr/>	2649 2 4
<i>“ Arrears :</i>		
Subscriptions.....	190 10 0	
Fines	17 16 0	
Interest	2 0 0	
Postage	1 1 6	
	<hr/>	211 7 6
		<hr/>
		£2860 9 10

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“Cr.

By formation expenses, including enrolment of rules, and deed boxes	25	14	2		
Manager's salary	50	0	0		
Postage (year's expense to the society)	5	12	0		
				81	6 2
By 33 shares taken up, value at £120 each.....	3960	0	0		
Less the discount (or <i>Premiums</i>)	1916	5	0		
	2043	15	0		
By arrears of subscription	£211	7	6		
Cash at bankers	524	0	10		
Cash in manager's hands.....	0	0	4		
				735	8 8
				2779	3 8
				£2860	9 10

To balance in favour of the society brought down	£2779	3	8
Deduct one year's subscriptions on 453½ shares, at £6 per share, and the £1 in advance.....	2722	0	0
Difference.....	£ 57	3	8”

which, divided among the number of investors' shares, or those which have *not* been advanced, will give the dividend apparently realised per share for the past year.

But the number of *unadvanced* shares is 453½ less 33, or 420½, and 57*l.* 3*s.* 8*d.* divided by 420½ equals 2*s.* 5*d.* nearly, which is the result of the past year's operations of this building society, *as far as the above debtor and creditor account is concerned*, and entitles the investors to receive 2*s.* 5*d.* per share at its *termination*, in addition to the £6 paid by each.

The *true value* of each share can only be ascertained by the method described in the preceding pages, in which would enter the various considerations deduced from the particular nature of the society.

No. 2.

“ The ————— Mutual Association.

Established in ————. Original entrance fee, *2s. 6d.*
Monthly subscriptions, *10s.* Redemption, *4s.* per share of
£120 each.

In the *third* annual report of this society, the directors state, that $85\frac{1}{2}$ shares have been advanced during the last year, which, added to those in the two previous years, make a total of $261\frac{1}{2}$ shares, on account of which securities have been lodged with the society.

“ Since the auditing of the accounts, $5\frac{1}{2}$ shares, not included in that number, have been further advanced, which will make 267 out of 635 shares subscribed for; and the directors are under engagements to advance 20 shares out of the fourth year’s capital.

“ The *present entrance fee* upon new and additional shares is £6; but upon shares being taken to complete a purchase it is only *2l. 2s. 0d.*, at which sum it was agreed they should continue until after the shareholders’ meeting in January last.

“ The minimum premium or discount upon purchased shares has been fixed by the directors at £55 per share for the fourth year.”

Summary of the financial statements as appended to the report :—

“ GENERAL ACCOUNT, FOR THE THIRD YEAR, ENDING OCT. 14, 1848.

“ *Dr.*

1847. To cash, as per last account	£8329	17	1
1848. Subscriptions	3650	16	6
*Interest, entrance fees, fines, rules, transfers, &c.....	590	0	7
Forfeit on purchased shares	60	0	0
*Arrears of subscriptions, fines, interest, &c.....	100	16	0
Cash advanced as a loan.....	4085	0	0
Premiums as per last report	10626	19	5
Premiums for 1848	4938	17	6
	<u>£32382</u>	<u>7</u>	<u>1</u>

* [The practice of throwing several items together to account for so large a sum as £590, as in the third line of the above debtor account, is unfair, and may justly become the subject of animadversion among the shareholders.]

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" Cr.

Expenses for 1846-47	£204	11	3
Interest on loans (2 years)	65	4	0
176 shares advanced in 1846-47.....	21120	0	0
85½ ditto in 1848	10280	0	0
1848. Management expenses.....	77	18	2
Interest on loans	183	4	4
Ground rent and insurance.....	11	1	2
Arrears, as above.....	100	16	0
Cash with bankers	359	12	2
	<u>£32,382</u>	<u>7</u>	<u>1</u>

PROFIT ACCOUNT.

" Dr.

1848. Expenses for three years	282	9	5
Subscriptions, ditto	11361	9	0
Interest, ground rent, and insurance.....	259	9	6
Arrears	100	16	0
Loans	4085	0	0
Cash with bankers	359	12	2
Profit and bonus	15933	11	0
	<u>£32,382</u>	<u>7</u>	<u>1</u>

" Cr.

By account as above	£32,382	7	1
	<u>£32,382</u>	<u>7</u>	<u>1</u>

" Shewing :

Profit and bonus brought down, divided between 635 shares			
of £120 each	£25	2	0
Subscriptions paid	18	0	0
Estimated portion of each share cancelled in three years	<u>£43</u>	<u>2</u>	<u>0"</u>

The above account contains various errors, and the items are injudiciously mingled together. The profit 15,933l. 11s. does not in reality exist, as it is in great measure an imaginary advantage, supposed to have arisen from the discount given by borrowers on their shares, and, as such, ought not to have appeared in the balance sheet.

We will not examine what would be found to be the actual value of the shares, supposing a proper calculation made, but simply remark, that the above furnishes ample evidence of the deficiency, arising from the expenses, which must exist towards the epoch of a society's termination, if they so considerably diminish, even in three years, the interest realised on the investors' subscription; for the receipts from interest and fees, including the forfeited shares, altogether only amount to 650*l.* 0*s.* 7*d.*, of which 541*l.* 18*s.* 11*d.* has been absorbed by the expenses, leaving 108*l.* 1*s.* 8*d.* to be divided between 368 unadvanced shares, which is about 5*s.* 10*d.* per share, and is all the interest obtained for three years' subscriptions on each.

Such a result speaks for itself.

No. 3.

The _____ Society.

Established _____. Original entrance fee, 2*s.* 6*d.* *present one*, £1 per share. Shares, £120. Monthly subscriptions, 10*s.* Redemption fee, 4*s.* per share.

In the first annual report published in _____, the directors allude to the *success* which has attended the progress of the society:—

“There are 113 members, holding 211½ shares, and the total profits, after deducting expenses, amount to 1096*l.* 17*s.* 9*d.*, being 5*l.* 1*s.* 2*d.* per share; which added to the subscription of 6*l.* paid on each share, shows a profit of 11*l.* 1*s.* 2*d.* to be the progress made towards the realisation of each share.”

The following are abstracts of the financial statements:—

“Dr.		“CASH ACCOUNT.	
Subscriptions on shares.....	£1258 10 0		
Entrance and redemption fees, fines, rules, &c.....	60 13 9		
		£1319 3 9	
“Cr.			
Expenses	66 14 9		
Advances on 19½ shares.....	£2340 0 0		
Less premiums thereon	1106 5 0		
		1233 15 0	
Balance with bankers.....	18 14 0		
		£1319 3 9	

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PROFIT ACCOUNT.

<i>" Dr.</i>	
To expenses.....	£66 14 9
Balance or profit of the first year	1069 17 9
	<u>£1136 12 6</u>

<i>" Cr.</i>	
Premiums on 19½ shares	£1106 5 0
Subscriptions and fines in arrear	11 13 6
	<u>1117 18 6</u>
Balance in bankers' hands	18 14 0
	<u>£1136 12 6</u>

Profit brought down :—	
£1069 17s. 9d. divided by 211½ shares, gives	£5 1 2
Subscriptions paid	<u>6 0 0</u>
Actual value of each share	<u>£11 1 2"</u>

The above result is fictitious in consequence of the discount or premiums 1106*l.* 5*s.* 0*d.*, given by the borrowers on the nominal value of their shares, being entered as actual profit or cash realised. Instead of any *interest* having been produced by the past year's business, we find that the expenses have even entrenched on the receipts from *subscriptions* ;—

For the expenses paid amount to.....	£66 14 9
Less fees, fines, &c. to be received or in arrear ...	<u>60 13 9</u>
Leaving a deficiency of	<u>£ 6 1 0</u>

which divided among the 192 *unadvanced* shares, gives a deficiency of about 7½*d.* per share.

* ART. 101.—“SCHEDULE C.

FORM OF LIABILITIES AND ASSETS ACCOUNT.

Dr.

1. Outstanding accounts unpaid: *viz.*,.....£ _____ £
 2. Loans and interest thereon due by the society: *viz.*,.....£
..... _____
 3. †To *net* subscriptions actually received upon shares (now actually in existence) of depositing (or non-borrowing) members, from the of 18 ,
to the 18 _____
 4. To interest due thereon up to this date and calculated at . per cent. rate of interest, (being the rate obtained from the borrowers, or that promised to the depositors by the rules) _____
 5. To reserve for future expenses during years..... _____
- Total..... £ _____

Cr.

1. By cash in hand: *viz.*,
.....£
..... _____
 2. Value of property in possession, through default, if sold to produce assets..... _____
 3. ARREARS due from the existing mortgages: *viz.*,
Re-payment subscriptions.....£
Fines and fees£
..... _____
 4. †By arrears of fines and fees due from non-borrowers ... _____
 5. Present value of existing mortgages, if redeemed, from which re-payments for years are to be received.
This present value being calculated at per cent. rate of interest, or by rule _____
- Total.....£ _____
- Balance.....£ _____ ”

The above has been prepared by me, _____ Chairman or Secretary,
this of 18 , at

* [Schedules A and B relate to the general business of the Society, and may be had on application to the Author.]

† NOTE.—[The arrears of *subscriptions* due from non-borrowers must not be taken into account, as the society is only made debtor to them for the *net* Subscriptions received]

CHAPTER VII.

* RULES FOR A PERMANENT BENEFIT BUILDING SOCIETY.

Copyright.

[*I have been led to consider the manner, in which a Benefit Building Society may be constituted on a permanent basis, so as to be free, as far as possible, from the imperfections inherent in the terminating system, and with this object I have prepared a set of Rules for its practical management.*—Preface to first edition.]

Established pursuant to the Act of Parliament, 6th and 7th William IV, cap. 32.

ART. 102.—£100 Shares. Monthly payments for 10 Years, 13s. per share, or for 12½ Years, 10s. per share. Entrance fee 2s 6d. per £100 Share. Half-shares of £50, or Quarter-shares of £25 each, may also be taken. The Law Expenses advanced to Members purchasing Property.

The First Subscription Meeting will be held on _____ at _____ o'Clock in the Evening, at _____; and subsequently on the First Monday in each Month at the same Hour.

I. Name and Object of the Society.

103.—THAT this Society shall be called the _____
Its object is to raise a fund to enable its members to receive an advance in full, of a share or shares, for the purpose of erecting or purchasing a dwelling-house or houses, or other real or leasehold estate in any part of England.

* [These Rules, as well as the whole of the work, are copyright, and they have been confirmed and certified by Mr. Tidd Pratt, the government barrister appointed for such purpose. They differ slightly from those in the first edition, which were also certified. Copies, with the names in blank, will be supplied to persons interested in the formation of Benefit Building Societies. It should be understood that they would mainly serve as a type of the apparently best system that can be devised. In particular localities some modifications may occasionally be made with advantage.]

[‘If it be intended to make advances on Copyhold property, it will be advisable not to specify the same by name, but to consider it as included in the words “Real Estate,” which belong to the Act. The majority of existing societies unhesitatingly make advances on either Freehold, Leasehold, or Copyhold property.’]

II. Time and Place of Meeting.

104.—That the first meeting for the receipt of subscriptions and the transaction of the ordinary business of the society be held on ——— at ——— o’clock in the ——— at ——— in the city of ———; and that the succeeding meetings for receipt of share-subscriptions, and advance repayments, shall be held on the first Monday in each month.

105.—That the ordinary meetings of the society shall be held at the offices aforesaid, on the first Monday in each month, at — o’clock in the evening. That the directors shall have power, from time to time, to remove the said offices, and alter the time of meeting as they may see fit. That notice of any such removal or alteration shall be given to every member of the society. That the directors shall have power to hold special meetings of their body, and to adjourn their ordinary and special meetings, as well as all general and special meetings of the members of the society, as occasion may require.

That the business of the directors’ meetings shall commence at — o’clock in the evening, unless upon subscription nights, when the same shall be deferred to — o’clock.

106.—That an annual general meeting of the members shall be held on the first Wednesday in the month of ——— in each year, at which the directors shall exhibit a general statement of the funds, effects, liabilities, and accounts of the society, together with an account of all and every the sums of money received and expended on behalf of the society during the past year; such statement to be previously audited in manner hereafter mentioned, and countersigned by the manager, and a copy of such statement shall be supplied to every member on application to the manager.

107.—That a special meeting of the members may be held on a requisition to the manager to convene such meeting; such requisition to be signed by at least five directors, or by ten ordinary members,

which requisition shall state the object for which such special general meeting is required; seven days' notice at least of which meeting shall be given to every member, stating the hour, place, and object of such special general meeting. That at such special general meeting no business shall be transacted not mentioned in the requisition calling such meeting.

III. *Share Subscriptions.*

108.—That the shares shall be of the ultimate value of £100 each. Each member, on admission, shall pay an entrance fee of 2s. 6d. per share, and a monthly subscription of 13s. per share, for and during the full term of ten years, or 10s. for $12\frac{1}{2}$ years, to commence on and from the first day of the month in which he or she shall be admitted.

Half and quarter shares may also be issued by payment of an entrance fee of 1s. 6d. & 1s. respectively, and a monthly subscription of half or quarter that required for whole shares.

109.—An allowance of * fourpence in the pound will be made on all subscriptions paid in advance, for a period of more than six and less than twelve months. The monthly payments may be compounded for by a single payment, according to Table 1:—[shewing the single payment which will compound for the monthly payment of one share for any number of years up to $12\frac{1}{2}$.]

TABLE 1.

*[*The Directors should be cautious not to offer too much discount on shares paid in advance. It may be safe to hold out a promise of accumulations from interest, by the end of a term of years, at even 5 per cent. or more; but it does not follow that it would be equally so, to allow 5 or $4\frac{1}{2}$ per cent. discount on money tendered in advance. The distinction is obvious:—in the one case, the undertaking is simply to give the result of the interest after it has been realised; in the other, the equivalent is parted with at once, and a grave responsibility unnecessarily incurred of so investing the money received as to recover the discount (or fore-stalled interest) paid in advance.*]

IV. *Advances and Re-payments.*

110.—The society will make advances to its members for terms of from 5 to 14 years, repayable by monthly or quarterly contributions, covering principal and interest, at the rates hereafter specified, *viz.*,

TABLE II.

Repayments for a Loan of £100, and interest.

		<i>Monthly.</i>			<i>Quarterly.</i>		
For a Term of 5 years		£	2	0	8	£	6
"	7	"	1	11	0	4	15
"	10	"	1	3	9	3	13
"	12	"	1	1	0	3	4
"	14	"	0	19	1	2	18

111.—When a loan is required for twelve years, not more than three-fourths of the value of the mortgaged property shall be advanced thereon: nor more than two-thirds of its value, when the loan is taken for fourteen years.

[For loans taken out for shorter periods than twelve or fourteen years, it will be for the Directors, on the advice of their surveyor and solicitor, to decide what proportion of the value of a property shall be advanced on the security of it. It is important that they should bear in mind that the risk of subsequent deterioration in the value of a security increases with the length of period of the mortgage.]

112.—No member will be allowed to receive an advance of shares exceeding the number he has previously subscribed for, unless he pay down the entrance fees, and continue to pay half the subscriptions on the whole number of shares required from the date of his being placed on the list. (*See* 146.)

113.—The following commissions shall be deducted from all advances made to members, and shall be appropriated to the management and contingent fund:—namely,

TABLE III.

		<i>Not exceeding in amount</i>					
		£100.	£200.	£300.	£400.	£500.	&c.
On Loans advanced for 5 years..							
"	7						
"	10						
"	12						
"	14						
							&c.

[The rates will vary with the locality in which the society is situated, and should be regulated by the principle in the Appendix, section 4.]

And that in consideration of the aforesaid commissions so allowed, borrowing members shall not be called upon to contribute, *after* the date of their advance, in respect to the shares upon which they have borrowed, any other sums towards expenses or contingencies excepting such fines, transfer, or other fees, as may be hereafter mentioned in these rules. (*See end of Art. 142.*)

114.—Members not being in arrear for subscriptions or fines, and having made payments during at least three months on their shares, shall be eligible to apply for an advance not exceeding the value of their shares, as fixed by Rule 3, provided they apply in writing to the manager, on or before the 25th day of the month, stating the amount desired, and such member shall receive a notice of all subsequent meetings for advance of money, until they be declared entitled to an award.

115.—Members, applying for advances for an amount greater than the value of the shares then held by them, must pay the entrance fee and half the subscriptions from the time of giving notice upon such additional number of shares as will be equivalent to the sum required.

116.—Any member entitled to an advance shall, within one month from the date of notice forwarded to him through the post office, find a good and sufficient security by way of mortgage for the same, and in case of failure he shall be allowed a further period of one month to complete the same, provided he pay interest on the advance, at the rate of — per cent. per annum, to commence with the second month so allowed him, at the end of which time his right to such advance shall be forfeited to the next member then on the list, unless he consent to make his repayments in respect of his awarded advance from that date.

117.—Members entitled to advances shall furnish duplicate particulars of property proposed as security, in the form to be furnished by the manager at the offices of the society; and the security being accepted by the directors, who shall have been previously satisfied by the surveyor and solicitor, of the sufficiency of the security offered, and all other preliminaries being arranged, the money agreed to be advanced shall be paid over to the member. And in case the money is applied to the purchase of land, and afterwards to erect buildings

thereon, the same shall be advanced by such instalments as the surveyor shall advise the Board of directors.

118.—The expenses of enquiry into title, and of survey of property, shall be borne by the member proposing the security, who shall deposit with the society a reasonable sum on account thereof, at the time the security is offered.

119.—That the repayment for advances shall be made at the end of the first calendar month, or of the first quarter, (as may be agreed upon by the directors) next following the receipt of the advance or any portion thereof, and shall continue to be so made for the full period for which the advance may have been originally taken, unless the mortgage be previously redeemed; and that, in all cases, such repayments shall be due on the first day of each month, and be respectively made thereon, if it be a day of meeting, or on the first subscription meeting thence ensuing.

120.—That the Board shall have the power to regulate the amounts applicable for advances, and the time and manner for making the same.

121.—Members desiring advances before they are declared entitled to them, may be accommodated, provided they have been members for at least six months, and provided the society can obtain loans from members, their bankers, or others, to meet such purposes, and upon their agreeing to pay the additional interest (if any) for a stated period, or until such advance shall be otherwise awarded to them; and, in such cases, preference will be given to members, who shall procure a loan for the society to meet their advances.*

122.—[The society will receive deposits of any sum not less than £5, allowing interest at a rate not exceeding 4 per cent., payable yearly.] (*See Art. 91, paragraph 9 and section 4 Appendix.*)

123.—In case a larger amount of funds shall be at any time unappropriated than the board shall consider advisable, the board shall, after giving notice of at least 14 days prior to their usual monthly meeting, have power to cause the same to be taken by the Investing members (not under notice of withdrawal, nor having received an advance), and the sums then so declared by the board to be taken in

[* See Art. 48 for remarks on this point.]

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single shares shall be wholly withdrawn, or be taken by such members to whom the same may be advanced upon the security of mortgages in the usual way ; and subject, in case of a default, to a forfeiture of their existing shares.

V. *Fines for Non-payment of Share and Advances Subscriptions.*

124.—Subscriptions for shares and advances shall be payable at the offices of the society on the first ————— in each month, between the hours of seven and nine o'clock in the evening, receipts for which shall be given, on a card or book to be provided by the society, by one of the directors of the society then present, countersigned by the manager ; and no acknowledgment otherwise given or taken shall be valid, unless the manager be unavoidably absent, when a minute of the directors shall be duly entered in their journal, authorising some member of the board to perform the duties of the manager on that occasion.

125 —The fines for non-payment of share-subscriptions shall be at the rate of 6*d.* per share per month for each default, and so in proportion for half-shares.

The fines for non-payment of monthly advance-repayments shall be at the rate of 1*s.* in the pound per month on the amount thereof, and upon quarterly repayments at the rate of 1*s.* 6*d.* in the pound for each month's default.

(^a) When the fines on unadvanced shares equal the amount paid in, the same shall be forfeited to the society. *The Board shall have power to allow a member specially to suspend his subscriptions on *unadvanced* shares on his making application to the Board for that purpose, and on his paying half the fines above mentioned.

VI. *Security for Advances.*

126.—The mortgage deed shall contain full powers of sale, as a security for so much money as shall be therein expressed to be ad-

* [Such a clause is necessary to suit the contingency of temporary difficulty on the part of members in the payment of subscriptions, unaccompanied by a desire to withdraw from the society.]

(^a) [*These small letters are inserted to assist the reference to sub-divisions of Clauses.*]

vanced and secured. In case the mortgagor shall fail, neglect, or refuse, for the space of four calendar months, to observe and perform all or any of his or her covenants for payment of advance-instalments, according to the terms and conditions of these rules and the said mortgage, as well as any fines inflicted for neglect of payment, on his or her part to be observed and performed, then the trustees named in the said mortgage, or the survivor or survivors of them, or the executors or administrators of the last survivor, or the trustees for the time being of the society, shall, either with or without the privity or consent of the said mortgagor, his or her heirs, executors, administrators, or assigns, have power to take absolute possession of the said premises, and to let the same, and to appoint a person to be approved of by the said board, to collect the rents of the premises thereby mortgaged; and may at any time or times hereafter, absolutely sell all or any part of the said premises, either by public auction or private contract, and either together or in lots, and at one time or separate times, if desirable, for the most money that can be reasonably had or gotten for the same; (*) and that every receipt of the trustee or trustees for the time being shall be a good and sufficient discharge to the purchaser or purchasers, paying his or their purchase-money, who shall not be obliged to see to the application of the same, nor be required to see whether any or what monies shall be due under such mortgage, or whether there has or has not been any breach on the part of any such mortgagor of the rules of the society, or of the stipulations of such mortgage deed, nor whether he or she has failed to pay any of the advance-repayments, fines, or other payments, either for the said space of four calendar months or for any other period; nor whether such trustees or trustee, or the executors or administrators of the last survivor of them, or the trustee or trustees of the society for the time being, have or have not authority for disposing of the premises comprised therein, but the possession of the title deeds and mortgage deed, and the written instructions of the board of directors, shall be considered sufficient authority for the disposing of the said premises by the trustees; (b) provided always, that the money produced from such rents and profits, or such sale or sales, as aforesaid, shall, in the first place, be applied in payment of all costs and expenses, which may be

incurred on account thereof, and, in the next place, to reimburse the society in the amount of advance-repayments then due and unpaid, together with all fines and commissions in respect thereof; and in the event of a sale or sales, of the then value of the future repayments in respect of such mortgaged property, with interest on the aforesaid amount of arrears and fines, up to the completion of the sale or sales, and on the then value of such future advance-repayments, at the rate of 7 per cent. per annum from the date of the first default; and that the present value of such future repayments shall be calculated by the consulting Actuary from the date of the completion of the sale or sales to the end of the term for which the mortgage was originally taken, discount being allowed at a rate, to be fixed by the consulting Actuary, not exceeding $3\frac{1}{2}$ per cent. per annum on such future repayments to the end of the mortgage term, and upon the principle of repayments made at the end of each year; and, in case the rents and profits of the mortgaged property, and produce of the sale thereof, after deducting expenses, be not sufficient to discharge the amount of such repayments in arrear, and the present value of the future repayments so calculated and interest thereon, the mortgagor so in default shall immediately pay the balance due thereon to the society; but that the trustee or trustees shall pay the surplus (if any) arising from the receipt of the rents and profits, and from the sale of such premises aforesaid, to the said mortgagor, his, her, or their heirs, executors, administrators, or assigns, or as he, she, or they may or shall direct: (c) provided always, that in case any of the mortgagors named in any mortgage deed, or his, her, or their heirs, executors, administrators, or assigns, having obtained an interest in such property (so long as the said premises may continue in mortgage to the society), shall become insolvent, or be imprisoned for debt, or be made bankrupt, then such trustees or trustee, or the executors or administrators of the last survivor of them, or the trustees for the time being of the society, with the sanction of the board of directors for the time being, shall have full power and authority immediately to take possession of the premises mortgaged, and let and manage the same, and collect the rents thereof, whether such mortgagor, or his heirs, executors, administrators, or assigns, be in arrear with his, her, or their payments, or not; and to sell the

said premises, if the rents so received be not sufficient to meet the repayments falling due in respect thereof; and in case any of the premises mortgaged to the society be left incomplete, the trustees or trustee for the time being, under the direction of the board, shall have power to complete the same, and the money expended and laid out in so doing shall be considered as part of, and in addition to, the original mortgage. And the said trustees shall also, with the sanction of the board, have the option of selling and disposing of the premises mortgaged, either in their incomplete state or upon the same being so completed as aforesaid. That upon payment of all monies due upon such mortgage, pursuant to these rules, the trustees or trustee for the time being, shall, at the cost of the member or person requiring the same, endorse a receipt or acknowledgment for the same on the said mortgage, in the form annexed to these rules, according to the act 6 and 7 Wm. IV., cap. 32, sec. 5.

127.—That during the continuance of a mortgage the member shall become actual tenant to the society in respect of his mortgaged premises, which shall be chargeable with the repayments in discharge thereof, as ordinary rent, and for any arrears of which repayments the society shall have power to distrain in the usual way. And in case the mortgagor, his, her, or their heirs, executors, administrators, or assigns, shall at any time fail to comply with any of the covenants of the lease or deed under which a mortgage properly may be held, or shall break through or infringe any of such covenants, then that the trustees or trustee for the time being, shall, in like manner as aforesaid, have full power to take possession of and to let and sell the said premises without any previous notice.

128.—That members holding advances upon quarterly repayments shall be considered to be in arrear of four months, when any quarterly repayment shall have remained unsatisfied for the period of one calendar month after the same shall have become due.

129.—That no money shall be advanced by way of a second mortgage, unless the prior mortgage be to the society.

VII. *Fire Insurance and Ground Rent.*

130.—That all property mortgaged to this society shall be insured, in pursuance of any covenant contained in the lease or deed under

which such property shall be held, or as the directors shall determine; and the manager shall immediately effect the same in the names of the trustees of the society, in conformity with written instructions to be furnished to him by the solicitor; and, in case of neglect, the manager shall be fined twenty shillings; and he shall pay all premiums for insurance of mortgaged property as the same respectively shall become due, or be fined twenty shillings for each insurance left unpaid; and the members on whose account such premiums for insurance shall be paid, shall, on demand, refund the amount so paid. (*See end of 131.*)

131.—That the manager shall pay all ground rents chargeable on property mortgaged to the society immediately on the several amounts respectively falling due, or within such period as the ground landlord may stipulate, or he shall be fined twenty shillings for each neglect; and the member on whose account such ground rent shall be so paid, shall immediately refund the amount thereof, with and in addition to his next monthly advance-repayments, and in default thereof, pay a fine of one shilling in the pound on the amount thereof; and until such ground rent and fine be paid by the member, the same shall be deducted from the amount of advance-repayments already paid by him, which shall be liable to fines the same as if the portion advance-repayments had not been already paid; and the same rule of deduction shall apply to the non-payments of fire insurance premiums.

132.—Whenever any property mortgaged to this society shall receive any damage from fire or any other cause, for which the insurance company may be liable to give compensation, the trustees for the time being of the society shall receive the amount of damage so sustained from the insurance company, unless by the power usually granted to certain insurance companies, the insurance company, by which such property has been insured, shall cause the premises so destroyed or damaged to be rebuilt or repaired; and in such case, the surveyors of the society shall inspect the premises so rebuilt or repaired, and furnish to the board of directors their report of the sufficiency or insufficiency of such re-erection or repairs by the insurance company, and in case the same be not completed to the satisfaction of the directors and the surveyors, the board of directors shall be empowered to take the necessary steps to have such re-

erection or repairs of the said premises perfected by the insurance company, to the extent of the insurance effected in the policy of insurance. But in case the trustees for the time being shall receive the amount of such damages in money from the insurance company, then the board of directors shall cause the said premises to be rebuilt or restored, under the superintendence of the surveyor of the society, at a cost not exceeding the amount of such monies so received from the insurance company, unless the member interested in the property shall furnish additional funds requisite to cover any further outlay he may require.

VIII. *Power to sell, redeem, and exchange mortgaged property.*

133.—That if any member who shall have obtained an advance shall be desirous to sell the property mortgaged, it shall be lawful for the purchaser, on becoming a member of the society, to take the property subject to such mortgage, and thenceforth to become answerable for the payment of all advance-repayments in arrear, and fines then due thereon, as well as for all future advance-repayments and fines thereon, from time to time, falling due in respect of such mortgaged property; an account of all which advance-repayments and fines then due and unpaid, shall be made up and acknowledged (in writing) by the person proposing to receive such liabilities and property in mortgage, which said account shall be duly signed by the person so becoming a member, in the presence of the manager, solicitor, or one of the directors of the society; and, provided the sanction of the directors be given to such transfer, the trustees for the time being shall, at the request and cost of the member so transferring his interest in the mortgaged property, then release him from all future responsibilities in respect of such property so transferred.

134.—That a transfer fee of five shillings for each advanced share shall be payable to the society after a mortgage has been made.

135.—That if any member shall be desirous of having his property discharged from the mortgage, under which it may be liable to the society before the expiration of the full term for which it was originally taken, he shall be allowed to do so on giving a notice of two clear calendar months prior to the ordinary meeting at which the redemption of such mortgage is proposed to be completed; and

that, on payment of all advance-repayments, and any fines due in respect thereof up to the time of the redemption of such mortgage, and of the present value of the future repayments calculated by the consulting Actuary upon the same principle as in Rule 6, to the end of the original term, and discounted after a rate of interest to be fixed by the consulting Actuary, not lower than $3\frac{1}{2}$ per cent, together with a redemption fee of 5*s.* per cent. on the balance so due, the trustees for the time being shall, at the request of the directors, and at the cost of the member, cause to be endorsed on the mortgage deed, a receipt or acknowledgment for the full payment of the amount secured in such mortgage in the form annexed to these rules, according to the act, 6 and 7 W.M. IV., cap. 32, s. 5.

136.—That the fee for the consulting actuary be paid by the member for whose benefit, or by whose default, he is consulted by the Directors.

137.—That members giving notice of a redemption of a mortgage, shall be liable to the usual fines for nonpayment of the advance-installment up to the time such redemption shall be completed.

138.—Members may, on payment of the expenses of survey, and other necessary charges, and a fee of 5*s.* for each advanced share, exchange a mortgage already taken to any other property of adequate value, provided no alterations be made in the original mode of repayments; and with the consent of the directors, members may also discharge any portion of a property from the liability of a mortgage.

IX. *Members transferring or withdrawing shares.*

139.—Members not having obtained advances may, on giving notice to the manager, of at least seven days prior to the first and third Monday in each month, be at liberty to transfer his or her shares, and the entire interest therein, on payment of a transfer fee of 2*s.* per share to the society; but in case any award of advanced shares has been made to the member, a transfer fee of 20*s.* per share shall be chargeable thereon; but in such case the transfer must be made to an existing member of the society.

[In consequence of members sometimes making it a practice to apply for advances (when they have no intention of purchasing

property) in the hope that, if successful in their application, they may make a profit by transferring the right of advance to another member, it is expedient to apply a check to such a practice, by charging a fee of proportionate amount to the party transferring.]

140.—The agreement of transfer shall be made and executed by the member, and duly attested to the satisfaction of the directors.

141.—In case of the death or insanity of a member before receiving an advance, and upon the application of the wife, widow, or legal representatives of such deceased or insane member, to withdraw from the society, the wife, widow, or such representatives, shall be entitled to a preference before ordinary members, and to withdraw at any time, and to receive back, at the time fixed by the directors for such repayment, the amount of subscriptions or shares which such deceased or insane member may have paid to the society, less all fines due and unpaid by the insane or deceased member at the time of his seizure or death, with accumulations thereon, as hereinafter provided.

142.—Members not having received an advance, who may be desirous of withdrawing from the society, must send a written notice to the manager of their intention so to do, at least 21 days before the first ————— in each month, and such withdrawals will be regulated as follows:—No withdrawals to be permitted, unless in case of death or insanity, under twelve months from the date of each member's admission respectively; provided always, that payment of any debts due from the society shall, if required, be made, before any share can be withdrawn; and that, under all circumstances, the sums paid for withdrawals shall in no case exceed the income derived from the repayments of shares already advanced to members; and that withdrawn shares (not wholly subscribed for) shall be paid out according to the number of applicants on the list kept for that purpose, each member receiving the due proportion of his subscription paid in, so that all such members shall be simultaneously accommodated with a portion of their shares. (d) And that in case the Expenses of the society and any loss sustained by it, exceed the monies appropriated to the management and contingent fund, all withdrawn shares shall be chargeable with a due proportion of such excess according to the

number of years such shares shall have been in force—and that this rule shall equally apply to members cancelling their unadvanced shares previously to their taking a loan from the society.

143.—That next after payment of withdrawn shares to deceased or lunatic members, the persons holding unadvanced shares paid up for the subscribed term shall have the preference, who shall be paid out in full and in rotation, according to their respective subscriptions being fully discharged, subject, however, to the aforesaid deduction for excess of expenses or losses (if any); and that interest, payable annually at a rate not exceeding 5 per cent. per annum, be allowed to such members holding paid-up shares, on the amounts respectively due to them, such interest to commence from the date of the realization of their shares respectively.

144.—That subject to such provisions aforesaid, the sums payable on *withdrawn shares* (upon which all subscriptions and fines shall have been duly paid) shall be according to the following table; and, provided a member voluntarily withdraw his shares in the course of a year, the sum set down at the close of the last year shall be payable, with interest thereon according to the following table, and also any monthly subscriptions subsequently paid; and so in proportion for half, or quarter-shares; (e) Or the half or quarter of a share only may be withdrawn.

TABLE IV.

[We recommend this table to be calculated on the principle of an ascending rate of compound interest, so that a member may be induced to abstain from withdrawing from the society, through the prospect of increasing advantage held out to him.]

145.—When any subscriptions or fines shall remain due and unpaid on any withdrawn shares, or parts of shares, at the end of a year, for a period not more than four months, the amount of such unpaid subscriptions and fines shall be deducted from the sums set down in the above table, and the balance thereof shall be payable to the

member, such fines to be calculated up to the first day of the month on which the applicant for withdrawals is placed on the list kept for that purpose. But, where the subscriptions or fines shall be in arrear for more than four calendar months, the deductions, as aforesaid, shall be made, but no further interest shall be allowed on the previous payments, until the arrears are settled.

146.—Members on receiving advances may continue to hold their shares or cancel the same; in which latter case, the sum then due in respect thereof will be passed to the credit of their loan account, and security will be taken only for the balance.

147.—After the society has been seven years in existence, the directors shall have power (with the advice of the consulting actuary) to alter the rate of interest allowed on withdrawal of unadvanced shares.

X. Members Dying, becoming Lunatic, or Insane.

148.—That no benefit of survivorship shall be claimed by the members of this society; but upon the death of members during the term of their subscription, their legal representatives shall succeed, according to law to their shares and interest in their property mortgaged to the society, (if any), and shall enjoy the same privileges, and be subject to the same payments, fines, &c., as the deceased shareholder would have had to pay, had he been living. (†) But in case such shares or interest in mortgaged property devolve upon more than one legatee, or more than one executor, or administrator, the right of voting of such legatees, or executors, or administrators, as members of this society, shall be restricted to one of them respectively, either to be agreed upon by themselves, or, in case of dispute, to be determined by the board of directors.

149.—That in the event of any member being declared lunatic, or of unsound mind, no fines shall be payable for arrears of subscriptions, fines, &c., until a committee or guardian of such afflicted member be legally appointed, or until some relative or friend shall undertake to discharge his said subscriptions, fines, and other payments to the society; provided, nevertheless, that on an application being made by the directors to some relative or interested friend of the afflicted member, to see to the due payment of his or her subscriptions,

advance-instalments, and other payments, such application shall be deemed a reasonable cause why such fines should be thenceforward enforced, and that the directors shall then be fully authorised in taking the ordinary steps for the recovery of all arrear payments whatsoever, which may be then due in respect of the shares or mortgaged property of the afflicted member, and if requisite, to proceed to the sale of such property, in the usual way; and that upon the legal appointment of a committee or guardian of the afflicted member, the society shall, if so required, but at a time fixed by the directors, pay over to the committee or guardian of such afflicted member, the amount of actual share subscriptions paid by such members, less the fines due up to the time of his lunacy, or unsoundness of mind, and the usual deduction towards the expenses of management as in the case of an ordinary withdrawal of shares; and in case such afflicted member may have received an advance of shares, the committee or guardian may be allowed to dispose of such property, or to redeem the mortgage thereon, or exercise any other privileges thereof as may pertain to the said member; and in case of a transfer of shares or mortgaged property, or of a redemption of such property in consequence of such lunacy or unsoundness of mind, the transfer and redemption fees, chargeable in respect thereof, shall be reduced *one-half* the usual rates.

XI. *Expenses of Survey, Mortgages, &c.*

150.—That the expenses of every survey, valuation, mortgage, and supervision by the surveyor of the society of any buildings erected upon property previously mortgaged to the society, shall be borne by the members respectively applying for or receiving an advance, and excepting the cost of stamps, registration, and other monies paid out of pocket at the time by the solicitor or surveyor, the expenses of mortgage may be repaid by an additional and proportional monthly subscription extending over a period not exceeding twelve calendar months, provided the member agrees to allow a fee of 1s. in the pound on each additional monthly subscription; and in case of a failure of their due payment, the same shall be chargeable on the mortgaged property, and be deducted from the advance-instalments.

XII. *Management and Contingent Fund.*

151.—All fines, fees, and commissions whatsoever mentioned in these rules, shall be passed to a management and contingent fund, and so also a deduction at the rate of five pounds per cent. per annum, from the amount of income derived from the repayment of advanced shares. [*See the Appendix, for the explanation of the principle of this and similar deductions, also sec. 4 for the Expense and Contingency Theorem, by which the per centages should be regulated.*]

152.—That the expenses of management, and any losses that may be incurred by the society, shall be defrayed out of the management and contingent fund; but if such expenses or losses be greater than the sum of such management and contingent fund, the excess shall be borne by the holders of unadvanced shares, not wholly paid up in proportion to the number respectively held by each, and according to the *number* of years the same shall have been in force; and by those members who have paid up the whole or part of their shares in advance, and received discount thereon; [and by those members, who voluntarily leave their realised shares as a deposit in the society's hands, and receive interest for the use thereof.] (*See 122.*)

153.—That at the end of the first three years, and every subsequent year, an estimate of the management and contingent fund shall be made, and if, after all losses and expenses shall have been satisfied, any surplus profit remain, the same shall be appropriated thus:—

One-third to a permanent guarantee fund to meet future contingencies;

And the other two-thirds to the holders of all unadvanced shares, not then in arrear for subscriptions and fines, in proportion to their shares held, and to the number of years they have been respectively in force, such bonus to be paid to the members on the completion of the monthly subscriptions on their shares. No portion of this bonus to be paid to members withdrawing previously unless the withdrawal is compulsory pursuant to Rule IV, No. 123. (*See sec. 4 Appendix.*)

154.—After the society has been 9 years in existence, it shall be lawful for the members, at a special general meeting summoned for the purpose, with the advice of the consulting actuary, to alter the above proportion in the division of surplus profits.

155.—That the expenses of all special meetings of the members shall be borne by the members subscribing the requisition, unless the directors determine the importance of the occasion to be such as to render their payment by the society just and reasonable.

156.—That each member on admission shall pay one shilling for a copy of these rules.

XIII. *Registers of Members, Shares, &c.*

157.—That a register be kept, in which shall be entered the christian and surname, profession, trade or business, and the place of abode of every member of the society, and as often as any member shall change his or her place of abode, he or she shall within 14 days give a notice thereof to the manager, or forfeit 1*s.* 6*d.* for each neglect. That, on such notice being given, the alteration will be duly entered in such register; and all notices shall be deemed duly given by putting the same into the post office, addressed to the member according to the last entry on the register.

158.—That a register of every member of the society be also kept, in which shall be entered the number and numerical order of the shares held by him, her, or them, the date of entry, transfer, or cancelling of the same, and any other details deemed necessary.

XIV. *Audit of Accounts and Consulting Actuary.*

159.—That at the first meeting of the society, two auditors shall be chosen, one by the directors and one by the members present, for the purpose of auditing the accounts and watching over the expenses of the society, prior to the annual general meeting. That the future appointments of auditors shall be made at the general annual meetings, except in the case of death during the year, when the vacancy shall be filled at the next monthly meeting by the directors and members respectively present. That the auditors attending shall receive 2*l.s.* each, as a remuneration for their services. (5) That a consulting actuary shall also be engaged to make an investigation of the accounts of the society at the end of each year, to whom also all questions, as they arise, relating to the value of shares, redemptions of mortgages, &c., shall be specially referred. That the report of the Auditors shall be countersigned by the Actuary, and shall be read at the annual meeting. That _____ be appointed Consulting actuary at an allowance of £ _____ a year.

XV. *Arbitration.*

160.—That in case of dispute arising between the society and any member thereof, or the legal representatives of any member, reference shall be made to arbitration, pursuant to 10 Geo. IV., cap. 56, sec. 27, unless such dispute can be amicably arranged by the directors and the member, or his legal representative, within fourteen days, from the time such disputed matter shall be formally brought before the board. At the first meeting after the enrolment of these rules, five arbitrators shall be elected by the members present, none of them directly or indirectly connected with the society; and in case of reference to arbitration, the names of all the arbitrators shall be written on separate pieces of paper, and placed in a box, and the three whose names are first drawn by the complaining party, or some one appointed by him or her, shall be the arbitrators to decide the matter in dispute, whose decision shall be final; provided always, that the award of the arbitrators shall be made within one calendar month next after a notice of the reference shall be given by the manager to each of the arbitrators appointed to adjust the matters in difference, unless a consent in writing be given to both parties to an extension of the time. Each of the arbitrators so drawn and attending shall receive a remuneration of one guinea; and the costs of the reference shall be paid as the arbitrators shall direct. The party requiring the arbitration shall deposit with the treasurer 30s. towards the arbitrators' remuneration.

XVI. *Officers.*

161.—That for the conduct of the business of the society, the following officers shall be appointed:—namely, three trustees, at most ten elected directors, a treasurer, consulting actuary, surveyor, solicitor, two auditors, and a manager.

XVII. *Qualification of Members.*

162.—That the holders of a share, half-share, or quarter-share, (advanced or otherwise) shall be deemed members, and, as such, be entitled to vote at all general meetings. Females and minors may be members, but shall not be eligible to hold any offices; nor shall minors, during

their infancy, be entitled to vote on any question, or be eligible to receive an appropriation of advanced shares.

XVIII. *Receipt of Subscriptions.*

163.—That all subscriptions for shares, advance-repayments, fines, and other monies whatsoever becoming due and payable to the society, shall be received only at the usual subscription meetings, during the hours of seven and nine o'clock in the evening, or at such other times as the board of directors may hereafter fix for that purpose. That all monies so received at such subscription meetings shall be delivered to the treasurer, and, on the following morning, be paid by him to the bankers of the society for the time being; and the book in which the entry of monies so paid, or the bankers' receipt in lieu thereof, shall on that day be deposited with the manager, who shall cause the same to be produced at the next meeting of the directors.

164.—That all subscriptions for original shares shall become payable monthly, in advance, from the first day of each month; and all repayments for advanced shares, retrospectively due, monthly or quarterly after the date of advance,—such dates to be restricted, as far as possible, to the first day of each month.

165.—That the Banking account shall be opened in the names of the trustees for the time being. That all cheques must be signed by at least one trustee, and countersigned by the chairman of the board of directors and the manager. That all payments exceeding five pounds be made by cheques on the bankers; and that for the payment of current petty expenses, the manager shall, from time to time, receive a cheque of ten pounds, which shall be duly renewed on a proper account of his former payments, to the amount of the last cheque received by him, being made to and allowed by the board.

XIX. *Mode of Voting.*

166.—That all elections and questions shall be decided by a show of hands, or by ballot, if demanded. No member to have more than one vote; and in all cases of equality of votes, the chairman shall have an additional or casting vote. But no member shall be allowed to vote on any question affecting his individual interest or conduct.

XX. *Dissolution of the Society.*

167.—That no dissolution of this society shall take place, unless its affairs be deranged, or its principles prove inadequate to promote its objects, or its funds be insufficient to meet the claims upon them, or from any other such cause, rendering the dissolution absolutely necessary, and then only in pursuance of the provisions of the Act 10 Geo. IV., cap. 56, sec. 26; and any member in any way attempting to promote a dissolution of the society, but for the causes before named, shall forfeit all his monies, benefit, and interest therein, and be forthwith expelled the same.

XXI. *New Rules and Alteration of Rules.*

168.—No rule herein contained, or any rule hereafter to be made, by virtue thereof, shall be altered, rescinded, or repealed, unless pursuant to 10 Geo. IV., cap. 56, sec. 9, at a general meeting, convened for that purpose; nor shall such new rule affect the fundamental principles of the society, but shall apply only to an explanation of the present rules, or to facilitating the operations of the society.

XXII. *Construction of Rules.*

169.—That in the practical application of these rules, or any rules hereafter to be made by virtue thereof, the construction put upon them by the board of directors shall be final and conclusive. That a word in the singular number shall be applicable to the plural; and the term “his” or “her” shall apply to a *female* as well as *male*, unless there be something in the subject matter or context repugnant to such construction.

XXIII. *Manager.*

170.—That ———, be appointed the manager of this society.

171.—That the manager shall receive whatever salary the directors may think proper, provided the same do not at any time exceed £ a year.

172.—That if the manager shall neglect to attend any meetings of the society at the time named for the commencement of such meeting, without shewing sufficient cause to the directors then present, he shall be fined five shillings. He shall enter minutes of all resolu-

tions in the rough minute book ; the same shall be fairly copied into another, to be read as part of the business of the next meeting ; and both to be signed by the chairman. He shall keep the accounts in order, in proper books to be provided for the purpose, shall send all circulars, and conduct all the correspondence of the society.

XXIV. * *Trustees.*

[* See page 73 for remarks relative to trustees.]

173.—That the trustees shall be *ex officio* members of the board of directors, but in no wise interested in the funds, effects, or property of the society, and that they shall continue in office during the pleasure of the board of directors. That in case the trustees first appointed, or any or either of them, or any future trustee or trustees to be appointed, as hereinafter provided, shall die, or be desirous of resigning, or be discharged from, or shall become incapable of acting in the trusts in him or them reposed by these rules, or be guilty of any gross neglect or improper conduct (of which the directors shall be the only judges), or shall remove from ——— to a distance of more than ten miles, or cease to have a place of business or residence in ———, so that the performance of their duties may become inconvenient to them, or that if a difficulty of access to them shall impede the business of the society, or if they shall become bankrupt or insolvent, the manager shall convene a special meeting of the directors, and the directors shall hear and determine thereon, and may thereupon remove such trustee or trustees ; ^(b) and as often as any new trustee or trustees shall be elected or appointed, the trustee or trustees so removed shall cease to be a trustee or trustees, and shall be incapable to act after such removal, or after the appointment of a new trustee or trustees shall have taken place ; and after every fresh appointment of a trustee or trustees, the resolution of appointment shall be signed by the chairman of the directors for the time being, or of the chairman of the meeting at which such appointment shall be made, and by two members and the manager, and the same shall be duly entered on the minutes of such meeting ; and the estates, monies, securities, funds, deeds, papers and property of the society shall at once become vested (without any assignment) in the continuing and newly appointed trustee or trustees ; or

should the trustee or trustees so resigned, incapacitated, or discharged, be out of the kingdom, or no means of communication can be had with him or them, then the removal of him or them by the board of directors, and the appointment of a new trustee or trustees in his or their stead, shall be likewise sufficient to vest all such estates, monies, securities, funds, deeds, papers, and property of the society, and all other matters pertaining thereto, in the continuing and newly appointed trustee or trustees. (1) In case of a vacancy of office from any cause whatever, by any trustee or trustees first appointed, or to be hereafter appointed by virtue of these rules, the appointment of a new trustee or trustees shall be made at the next monthly meeting by the members then present, providing a notice of such intended appointment can be sent to every member seven clear days before such meeting, or at the annual general meeting, if such vacancy take place within fourteen days previous to the same. (1) That all deeds, writings, and securities to and from the society, shall be made and taken in the names of the trustees or trustee for the time being, and shall be deposited with the bankers of the society, to be appointed by the directors, or with such other persons as they may deem fit, in a box furnished by the society. And no document whatever shall be allowed to be removed from such box, unless by an order of the board, signed by at least three members thereof then present. (k) The manager shall furnish to the trustees an inventory of the contents of such box, and retain a duplicate thereof for the use of the directors.

174.—In case it shall be necessary or expedient to bring or defend any action, suit, or prosecution, at law or in equity, touching or concerning the property or assets, rights or claims of this society, or touching or concerning the breach or non-performance of any of the articles, matters and things herein contained, or of the conduct of any member or officer of this society, the same shall be brought or defended by, or in the names or name of the trustees or trustee for the time being, and he, or they shall be indemnified from all loss or damage to be by him or them sustained in consequence thereof; but no such proceedings shall be taken or defended, until the approbation of a majority of the directors present at a special meeting, to be convened for that purpose, shall be first had and obtained. (1) The trustees for the time being may, at the request of the directors,

borrow and take up at interest any sum of money from any banker, or other person, as occasion may require, to procure which the trustees may give their own personal security, and they shall be indemnified in respect thereof out of the future receipts of the society. That the trustees or trustee for the time being, shall do no act in their official capacity, but by the written order of the board of directors, such order to be signed by the chairman of the meeting at which such order is made, and to be attested by the manager.

175.—That _____, be hereby appointed trustees of this society.

XXV. *Directors and Treasurer.*

176.—The elected directors shall be shareholders, one third of whom shall go out of office after the first two years, but be eligible for re-election. The future election of Directors shall take place at the annual general meetings, except in case of death during the year, when any vacancy shall be filled up by the board. ^(m) That if any director shall become bankrupt, be declared insolvent, or resign, his office shall become vacant, and if, during the year, the vacancy shall be filled up by the board, as in case of death. ⁽ⁿ⁾ The directors shall annually appoint, out of their body, a chairman, deputy-chairman, and treasurer; and, in the absence of either chairman or deputy-chairman, the directors shall appoint a chairman for the several meetings. That one of the directors (in rotation) with the treasurer and manager, shall attend the meetings for the receipt of money, within the hours specified in these rules, or at such other times as the directors may think fit.

177.—The qualification of a director shall be the holding of at least one *unadvanced* share. * Each director shall be paid 6s. 6d. for each attendance at an ordinary subscription meeting; and the chairman shall, in addition, be allowed 5s. extra. ^(o) That the Treasurer attending the receipt of subscriptions shall receive 5s. each time for his services.

178.—That the directors may divide themselves into rotas, or committees, for the conduct of the business, as they may think fit, (such

[* Instead of paying the directors monthly, the clause may be thus varied: "The members at an annual general meeting shall have power, with the advice of the society's consulting actuary, to vote a sum of money to be paid to the directors and officers for their past year's services."]

committees or rotas to be open to the other members of the board); provided, however, no rota shall continue longer than three calendar months at one time, without some change of members. That for the transaction of general business, three elected directors shall form a quorum. The Board shall meet at least twice every month, and the date and place of the last meeting having been read from the minute book, the bank book shall be exhibited, (or in lieu thereof, the bankers' receipt), and the amount deposited, since the last meeting, declared, and entered as the first minute. The Board shall, from time to time, inspect the books kept by the manager; and the directors, or three of them, shall have power to call a special meeting of the board at any time, by giving two clear days' notice, and stating the object for which it is called. In case the requisite number of directors shall not attend, the manager shall have power to adjourn the meeting to some other time. In case of equality of votes, the chairman shall have an additional or casting vote. No director shall be present during the discussion, or at the decision of any question affecting his own interest or conduct. Any director failing to attend his rotation at the receipt meetings, or to procure a substitute, shall pay a fine of 2s. 6d., or if he fail to be present within ten minutes after the appointed hour, he shall forfeit one shilling.

179.—That the Board of directors shall consist of trustees, and of not less than six, nor more than ten, elected members.

180.—That the Board of directors shall have power to appoint agents to receive applications for shares, and to pay them such compensation by way of commission on all shares introduced by them as the Board may deem fit.

181.—That the following gentlemen be directors of this society for the ensuing year, with power to increase their number within the before-mentioned limits :—namely, Messrs. —————

XXVI. **Architect and Surveyor.*

182.—That —————, be hereby appointed architect and surveyor to this society.

*[With respect to a system of Fines adopted for neglect on the part of the Surveyor, the first question is, what right has the Society to impose them? The mere fact of the rules giving the power to fine, does not suffice until the

183.—That for every valuation and survey of property within three miles of —————, the following fees shall be allowed :—

Where the sum advanced does not exceed £150, one guinea; and above that sum at the rate of 10s. 6d. for each additional £100 borrowed. And if the distance exceed three miles, but not more than ten miles, one shilling per mile (one way only) extra shall be charged; where, however, any greater distance be required, such additional charge shall be allowed as shall be agreed upon by the board and the surveyor.

184.—In all cases where the architect and surveyor is required to supervise the erection of any buildings on behalf of the society, the remuneration shall be specially agreed upon by himself and the board.

XXVII. *Solicitor.*

185.—That ———, be hereby appointed solicitor to this society.

186.—That the solicitor shall transact all the legal, equitable, and conveyancing business of the society; and if any dispute arise with reference to his charges, the case shall be referred to two members of the legal profession, one chosen by the board or member interested, and the other by the solicitor; such referees, before proceeding to arbitrate, to appoint an umpire, in case they should disagree; the award of such arbitrators or umpire to be final and conclusive.

XXVIII. *Removal of Officers.*

187.—That neither the solicitor, surveyor, consulting actuary, nor manager be removed from their respective offices, except for misconduct or inability; and then only by a majority of at least three-fourths of the members present at a meeting specially convened for that purpose, and who, in case of a removal or resignation of such officers,

party to be fined has consented to be bound by them. The appointment of the Surveyor should therefore be made in writing, and be expressed to be under and by virtue of the rules of the Society; and he should be required to accept the appointment on the same terms. Under such an appointment there would be no difficulty in enforcing the fines. Without it, or some implied agreement to be bound by the rules on the part of the Surveyor, the Society could not legally impose or enforce them.—*Thompson, on the Law of Benefit Building Societies.*]

shall authorise the directors to proceed to elect other and fit persons in his or their stead.

XXIX. *Indemnity to Officers.*

188.—That the trustees, directors, and all other officers of the society shall be, and are hereby, indemnified and saved harmless out of its funds and property, from and against all losses, costs, charges, damages and expenses, which they may incur or be put unto, in or about the execution of their respective offices, trusts, and services; and none of them shall be answerable for any act or default of any other of them, or for the insufficiency or deficiency in the title or otherwise of any security whatsoever which shall be taken for the repayment of any advance, unless the loss, arising by such means, shall happen through their own neglect or default; nor shall they be liable for any banker, broker, or other person with whom the trust monies shall from time be deposited for safe custody, investment, or otherwise, nor for any involuntary loss, misfortune, or damage whatsoever, which may happen in the execution of their respective offices, services, or trusts, or in relation thereto.

} *Members.*
Manager

SCHEDULE OF FORMS.

A

189.—To the Manager of the _____ Benefit Building Society.

SIR,—I send you the following particulars of certain premises which I am desirous of purchasing, according to Rule IV., page 6.

Name _____
Address _____
No. of Certificate _____
Date _____

Situation and extent of property, number of rooms, extent of garden, &c.

Is the property freehold or leasehold?

If leasehold, the number of years unexpired?

If original lease, underlease, or assignment of lease?

Ground rent per annum?

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When payable ?

To whom, name and address ?

Taxes, rates, &c., their amount respectively ?

Does the tenant or landlord pay the rates and taxes ?

Insurance, date of payment, name of office ?

Gross rental per annum ?

If unoccupied, what is the fair rent ?

Is the rental paid weekly, monthly, quarterly, or held on lease ?

Amount of advance required ?

Is the property subject to prior mortgage ?

If so, to what amount ?

Is the applicant solvent ? Ever been bankrupt ?

Is the applicant free from any judgment or other encumbrance likely to effect his real estate ?

Is the title good of such premises ?

Have any of the covenants in the lease been violated ?

B

To the Manager of the _____ Benefit Building Society.

SIR,—I send you the following particulars of certain buildings which I am desirous of erecting,

Name _____

Address _____

No. of Certificate _____

Date _____

Description of building, to be accompanied with plans.

Where to build ?

Leaschold or freehold ?

Ground rent per annum ?

Covenants of lease ?

Amount required ?

By what instalments, and how often ?

Has the applicant ever been bankrupt or insolvent, or has he any encumbrance registered so as to affect his estate ?

C

To the Manager of the _____ Benefit Building Society.

SIR,—I send you the following particulars of freehold land which I am desirous of purchasing.

Name _____

Address _____

No. of Certificate _____

Date _____

Description and extent of property.

Where situate,—parish, county, &c. ?

The value per annum ?

By whom is the land held ?

To what use is the land to be applied by applicant ?

D

Receipt to be endorsed on mortgage security.

We, the undersigned, the trustees for the time being of the within-mentioned _____ Benefit Building Society, do hereby acknowledge to have received of and from the within-named _____ his heirs, executors, administrators, and assigns, all monies intended to be secured by the within written deed.

As witness our hands this _____ day of _____ 18—.

E

Form of transfer.

I, _____, one of the members of the _____ Benefit Building Society, in consideration of _____ paid to me by _____, do hereby assign and transfer _____, to the said _____, his (or her) executors, administrators, and assigns, subject to the payments, rules, and regulations, prescribed by the society. And I, _____, sanctioned by the board of directors, do hereby agree to accept the said share (or shares) subject to the same payments, rules, and regulations.

As witness our hands and seals, this _____ day of _____ 18—.

Barrister's certificate.

190.—I hereby certify that the foregoing rules are in conformity to law, and with the provisions of the statute 6 and 7 Wm. IV., cap. 32.

The Barrister-at-Law appointed to certify
rules of savings' banks.

London, 24th June 1848.

Copy kept, pursuant to 9 and 10 Vict., cap. 27, sec. 12.

Actuary's certificate.

191.—I hereby certify that the rules and rates of the _____ Permanent Benefit Building Society are founded upon equitable and sound principles, and may safely be adopted for its use.

Actuary.

CHAPTER VIII.

ON LIFE OR FIDELITY ASSURANCE APPLIED TO BENEFIT BUILDING SOCIETIES.

SECTION I.

As regards Borrowing Members.

ART. 192.—There remains one circumstance in connexion with the operations of Building Societies, which more particularly deserves the serious consideration of those members, who have borrowed money for the purpose of purchasing a house or other property. It has been explained that, when an advance is obtained by a member, a mortgage of the property purchased with it is given by him to the society, for a specified number of years, as security for his making, during that time, certain fixed periodic payments, by which the loan is to be repaid with interest.


If the borrower survive the term of his mortgage and complete the redemption of his property, he will, in most cases, have thus secured an unincumbered provision for his family, and all is well. But if he die before this satisfactory result is attained, unless his successors can continue the redemption payments, for whatever number of years remain in the agreement, the Building Society is under the necessity of foreclosing the mortgage and reselling the property, in order to recover the remainder of the debt. The late borrower's family, consequently, find themselves suddenly deprived of a provision on which they had calculated; and whatever sum they may recover from the sale of the house, after complete

payment of the society's claims, it would, under such circumstances, be but small in comparison with the advantage, which had naturally been expected by them before his death.

This difficulty in the position of the borrower can only be surmounted by the application of Life Assurance, which alone affords the certainty of monetary payments adapted to the contingencies of human life. It is exactly one of the cases that Life Assurance is specially prepared to meet. The contingency to be provided against being :—the chance of a given life dying before the expiration of a given number of years.

Were the borrower's debt to remain undiminished until the end of the specified time, and were that time a *fixed* number of years, then by taking out an ordinary *Temporary policy* on his life for that period, equal to the amount of his debt, he would secure the necessary sum payable to his family in the event of his decease at any intermediate time. But, in consequence of the claim on the property diminishing every year, and in fact every month, the policy can, at the option of the assured, be made of such a kind as to adapt itself to the decrease, in various ways more advantageous to him, and suited to each particular case.

To persons unacquainted with life assurance transactions, it may be explained that policies are generally denominated *whole-life* or *temporary*. If the policy be effected for the *whole of life*, the assurer pays, during that time, a certain annual premium, varying with his age at entry, in consideration of which the company undertakes to pay the amount assured, whenever his death takes place; so that, some day or other, his family are sure to be thus benefited. In *temporary policies*, the society merely guarantees the payment of the amount assured, provided the assurer die within the number of years for which it is taken out. As, however, the risk of the assurance company from the chance of such an event is, for most ages, considerably less than in whole life policies, the temporary annual payments are also considerably smaller.



But, on the other hand, if the person assured *survive* the period for which the assurance was effected, he receives from it no further benefit beyond the satisfaction which he may have experienced during the past, arising from the certainty that his family has been completely protected during the then existing chance of loss.

Before examining the various modes of assurance which have lately been suggested, we may remind the reader that, in the preceding sections of this work, it has been explained, that in most terminating societies there exists considerable unwillingness on the part of the directors to allow the redemption of mortgages, from the great inconvenience which arises in the latter years of a society, if a sum of money be returned on its hands, for which a *re-investment* may not be easily found. If, therefore, in consequence of the death of a borrower, or from any other cause, a redemption be permitted, it is required to be on such terms as will secure the association from loss; and the amount which, according to the rules of compound interest, would be considered a fair composition for the remainder of the debt of a deceased borrowing member, might not always be accepted as sufficient by the directors, who would have to take into account the loss of interest likely to be produced by the absence of re-investment for the money returned; which loss, if not obviated, must prevent the realisation of the results anticipated in their fundamental calculations.

This practical difficulty, among others, renders it impossible for a borrower to know, beforehand, the precise sum, which might be required from his family, after his death, for the redemption of his mortgage; although, of course, he would be justified in expecting that it would be less than the amount originally borrowed. Again, another obstacle to the accurate determination of a borrower's liabilities arises from a circumstance peculiar to the mortgages effected in terminating societies, caused, as we have before mentioned, by the special

provision, that the payments of the members shall not terminate, until the promised amount of each of the *unadvanced* shares held by non-borrowing members has been realised; and that, if from any cause there exist a deficiency in the accumulated funds of the association at the end of the specified term of its existence, all the subscribers, borrowers as well as non-borrowers, shall continue to make their payments, and the mortgages on property shall remain in force, for the necessary additional time, of which the duration cannot be calculated until the deficiency is discovered.

In *permanent societies*, these obstacles to the ready application of life assurance do not exist, as they are free from the practical objections above quoted; and in some instances also of the *terminating* societies, where they are formed on accurate and sound principles, arrangements can be made, by which a borrower may avail himself of the advantages offered by life assurance. In the present confused state of the affairs of most of the existing associations of this kind, it is impossible, of course, to offer any advice on the subject, which can meet each individual case; but attention may be drawn to several plans prepared by some of the well-established assurance companies.

These plans appear to be of two kinds:—either the policy secures a *single* sum of money, to be paid at the death of the assured, and sufficient to clear off the debt; or the assurance company undertakes to *continue the subscriptions* of the borrower after his decease, until the period of the expiration of his mortgage.

In the first plan, *three varieties of policy are suggested*:—*First*, that the borrower, if he can afford it, should effect an assurance, equal to the amount of his loan, by a *whole life policy*. He thus, not only makes his family secure during the period over which his mortgage to the society extends, but, in the event of his surviving, also creates a further pro-

vision for them, payable at whatever subsequent time his death may occur. This plan is undoubtedly the most advantageous for his family, but it is generally found too expensive, as the borrower, in most cases, finds it nearly as much as he can manage, with his limited means, to pay his share subscriptions. The *Half-premium* system for seven years might be useful, by which only half the whole rates are charged for that term, the remainder standing over as a small debt upon the policy.

Secondly.—It is proposed that he should effect a *temporary policy* on his life, which shall commence at the time he obtains the advance, and be equal to the amount thereof. The term of its existence also to be equal to (or perhaps, if thought safer, a few months longer than) the number of years over which the mortgage is expected to continue. It is then arranged, that at the end of each year the assurance company should allow him to diminish the amount of his policy, by a sum equal to the diminution effected in his debt to the Building Society, during each *past* year ; thus maintaining it, nevertheless, large enough to meet its purpose during each *coming* year. By this arrangement the annual payments would of course receive a corresponding diminution, and the amounts, by which the policy is to be reduced from time to time, would be left undetermined, and at the will of the assured, in consequence of the impossibility of his ascertaining, beforehand, the sum which might be required, in the course of the society's existence, to pay off the remainder of his loan in the event of his death ; and, although the extent of his debt at the *close* of each year, depends on practical contingencies, undeterminable by theory, yet it is in the power of the assurer to ascertain the correct amount, relatively with the actual circumstances of a Building Society, by applying annually to the manager ; moreover, as the rates of premium, on policies of this kind, diminish every year, they become

rapidly very small, and appear to be within the reach even of persons of very limited incomes.

193.—*Thirdly.*—Some Life Assurance Societies have offered to issue *temporary policies*, diminishing by an unvarying *fixed* amount every year; the rates of premium decreasing accordingly.

For example:—Suppose that in a 10-years Building Society a member has borrowed £300,—he is recommended to effect a temporary policy for £300, for the period of 10 years, diminishing by the fixed reduction of £30 a year.

This plan, however accurate in principle as a mere life-assurance question, is not at all applicable to the case of mortgages from Building Societies, whether examined theoretically or in its practical bearings: for the policy, during more than half the period of its existence, would be insufficient to cover the debt.

When it was first put forth, two or three years ago, by the life assurance companies alluded to, its unsoundness was very ably proved by some of the periodicals which treat of these subjects, although not with the complete success of causing the directors to suspend its detrimental action. As, however, the subject is one of considerable importance, on account of the loss and future injury entailed on persons, who may be tempted to assure from the simple form and apparent cheapness of the policies, we shall here examine it by an example:—

A man borrows £300 from a Building Society which is expected to terminate in 10 years, and whose shares are £120 each,—for this loan he requires 5 shares, supposing the present value of each share to be £60, and he has to pay a monthly subscription of five times 14s., or 3*l.* 10s., in all £42 a year. To secure the family of the borrower from liability, in case of his death before the expiration of the ten years, the assurance society recommends him to effect a temporary policy of assurance for ten years on his life, according to a

scale given in their prospectus. By this scale the amount of the policy is diminished £10 per cent. every year, so that—

If the borrower died between the beginning and end of the 1st year, the policy would secure the payment of	£300
If he died between the beginning and end of the 2nd year, the sum payable would be.....	270
Within the 3rd year	240
4th year	210

And so on, diminishing £10 per cent. annually—the diminutions in the policy taking place at the *end* of each year.

To this circumstance attention must be given, as the object of these remarks is to prove, that the amount so secured, payable in the event of the death of a borrower, is not sufficient, the fixed diminution in the amount of the policy being too great during the first half of the years of existence of the policy and the debt to the building society. It has been explained in Chapter III., that the rate of interest involved in the calculations of a building society such as this, is 7 per cent., so that the current account of the borrower relative to the society will stand thus :—

<i>First year</i> —Principal or debt	£300	0	0
Interest at 7 per cent.....	21	0	0
Total	321	0	0
Deduct paid.....	42	0	0
Leaving a balance due at the end of the 1st year	279	0	0
<i>Second year</i> .—Interest	19	10	0
Total	298	10	0
Deduct paid.....	42	0	0
Balance of debt at the end of 2nd year...	£256	10	0

And so on, year by year, the balance due can be annually ascertained. The fact of the payments being *monthly* instead of annual will not materially affect the results.

Now, if the amount of the debt at the *end* of each year be compared with the corresponding remaining amount of the policy, it is seen that, at the end of the first year, the former amounts to £279, while the latter is only £270, being too small by £9 to meet the debt. Similarly at the end of the second year the policy is deficient by 16*l.* 10*s.* 0*d.*, and so on during more than the first half of the debt; hence, although as far as the assurance companies are concerned, policies may be safely granted, decreasing every year by the same fixed sum, yet they are evidently inapplicable to the case of the borrowing member of a building society, who ought himself to have the power of determining, year by year, the amount by which his policy is to be diminished.

194.—The *Second System* of life assurance adapted to the requirements of a borrower in a Building Society, by which, in the *event of his death, the Assurance Company takes his place, and continues his monthly subscriptions*, we suggested in consequence of the strong objections which exist to the effecting of life policies for *single* sums of money, from the practical difficulties, that constantly arise, in the equitable adjustment of the remaining amount, which the Building Societies are entitled to claim in repayment of a debt.

In the policy recommended in their stead, the assurance office undertakes, *in consideration of a fixed diminishing, (or, under certain conditions, equal,) annual premium, paid to it by the borrower, to continue, from the time of his decease, the monthly subscriptions for which the house or property is liable, until the mortgage is cleared off.* The term of the annuity is taken as ending with the year, in which the society (if terminating) is expected to close, or for a few years longer. This

plan, which has been adopted under the name of the "*Guarantee temporary annuity policy*," appears to offer additional security to the Benefit Building Society, at the same time that it renders the family of the borrower entirely free from liability or trouble of any kind.

To illustrate the application of the diminishing payment, we will take the same example as before:—Suppose a person aged 30 borrows, in order to purchase a house, £300 at the commencement of a Building Society, which is calculated to close in 10 years, and whose shares are £120. He requires for this loan 5 shares, and has to make during the 10 years an annual payment of £42.

Now, if the borrower die before the 10 years are expired, the house is liable to be seized for the remainder of the mortgage unpaid, unless his family can continue the monthly instalments,—but if he effect, at the same time with his loan, a guarantee temporary annuity policy on his own life for 10 years, securing the annuity of £42 a year, or 3*l.* 10*s.* monthly, payable in case of his death, from that event until the expiration of the 10 years, his family is rendered free from any liability by a comparatively small annual outlay, which at his age 30 is as follows: *viz.*

1st year's payment	£5	0	0
2nd „ 	4	7	1
3rd „ 	3	19	2
4th „ 	3	10	5
5th „ 	3	1	8
6th „ 	2	12	1
7th „ 	2	2	11
8th „ 	1	12	6
9th „ 	1	2	1
10th „ 	0	11	3

From this it is seen that if, for example, the party die in the 4th year, he will have purchased an annuity of £42 a year

for the 6 remaining years, by four payments amounting to 16*l.* 16*s.* 8*d.*

It is evident the principle of such assurances is the same whether the payments of the Building Society are 10*s.* a month during fourteen years, or any other amount ; and it matters not whether the loan be effected at the commencement, or in any other year of the existence of a Building Society. All that the borrower has to consider is the amount of his annual payment, and the number of years he expects they will run over : with these facts he can ascertain what premium and what amount of policy will suit his purpose.

195.—The principle of making the *annual premiums diminish* annually with the risk, to which the assurance company is exposed, is obviously the correct one, and it has been since widely adopted ; but, in order to meet the requirements of the industrious classes, the policy is frequently desired at an *average equal* premium, so as to lessen the heavy expense at first. This, without some limiting condition, is disadvantageous to the office, and yet it has lately been undertaken by some assurance companies. For instance : one of the prospectuses states that a reversionary temporary annuity of £10 will be guaranteed, in case of the death of a person aged 30 before the end of 10 years, in consideration of the equal annual premium of 13*s.* 10*d.* a year, and that at the age of 35 the same annuity, for 5 years, may be obtained for 8*s.* a year.

A few words will suffice to point out the error of such an arrangement. In charging the *same annual payment* throughout the duration of a *diminishing* risk, the office is virtually substituting for payments, which ought to diminish year by year, their average amount. Thus, by the rates above given, the borrower aged 30, might assure the reversionary temporary annuity of £42 a year for 10 years by an invariable annual premium of 2*l.* 18*s.* 2*d.* payable throughout the term of the assurance. It is obvious, therefore, that during the *first half of the existence of the policy*, or the first five years, the office

is receiving a premium much *too small*, to be in proportion with the risk incurred (which can be seen by comparing it with the rates in the example before given of *diminishing* premiums), and *during the second half* of the period, the converse takes place.

If the assured then die in the first half, the life office must experience a serious loss, since it will have to pay an annuity for the remaining number of years, towards which it will not have received an adequate amount of premium. And if he *survive* the first half of the period, it is clear that a direct incentive is offered to him at once to drop his assurance, because the premium he would have still to pay exceeds the advantage yet offered by the policy in case he should die during the remaining half of its existence; for, in the remaining 5 years the annual premium securing £42 a year is still 2*l.* 18*s.* 2*d.* But the same prospectus which we have quoted above states, that at 35 (his then age when 5 years have elapsed) a reversionary annuity of £10, can be purchased for 8*s.* a year, or the borrower can take out a new policy, securing £42 a year for 5 years, by an annual payment of 1*l.* 13*s.* 8*d.* In other words, supposing the borrower *survive* the *first* five years, he would find that by dropping his old policy, and taking out a new one, he could effect an *annual* saving of 1*l.* 4*s.* 6*d.*; a matter of some consideration to persons whose means are limited.

Hence, the plan of an unvarying annual premium during several years exposes the society to loss, and then holds out an inducement to the assurer to abandon his policy, as he may effect another at rates considerably reduced for the remaining term of his mortgage, a circumstance which it would be idle to expect him to overlook.

196.—The simplest mode that we can suggest of obviating this practical difficulty would be to charge for the *first* year a larger premium, than for the remainder of the term:—Such as two years' payments to be made in advance on taking out a

policy. For example: The first payment would be 5*l.* 16*s.* 6*d.* and the 8 remaining premiums each 2*l.* 18*s.* 4*d.* The policy being still for 10 years.

197.—In preparing tables on the above system for the assurance of a diminishing risk, it has perhaps been imagined that, because the analytical investigation produced a correct mathematical formula, by which the premiums could be calculated, it would still be sound if applied to practical purposes. Such is far from being the case in this instance, or, indeed, in many others of a similar kind; and a neglect of sufficient examination of the effect of practice applied to theory is probably the cause of the many unsound features of Life Assurance, which, from time to time, are met with in the prospectuses of different companies.

SECTION 2.

Life Assurance applied to Investors.

198.—The preceding plans of life assurance have all had reference only to the requirements of *Borrowers* in Benefit Building societies. The advantages to be derived from its application can, however, be extended in a most beneficial manner to the *Investors* or non-borrowers, in such associations as are formed on the permanent principle suggested in Chapter IV, according to which an investor pays a certain monthly subscription for a given number of years, and, at the end thereof, receives the amount of the shares he holds.

If he *die* previously, his family are entitled to claim from the building society merely the amount of his past subscriptions and whatever interest may be due upon them, according to the regulations usually contained in the rules.

Now it is possible, supposing the shareholder to be an insurable life, to make his shares payable in full, at the *end*

of the specified term of years if he is alive, or *sooner* to his family, in the event of his previous death. In the specimen of a permanent society given in Chapter IV, it is stated, that by the payment of 13 shillings monthly for 10 years, an investor can realise a share of £100 to be received at the end of that time. If the principle of temporary life assurance be applied, which can be done with safety in a permanent Benefit Building society, the members of which increase in number every year, it is found that, in consideration of a mere trifle extra per month (at some ages even less than one shilling per cent.) in addition to the 13 shillings, the Building society itself would be able to undertake to pay at once to the family of a non-borrowing member his share in full, should he die before the 10 years have expired. Such an arrangement would be a most important boon to the industrious classes, whose families suffer greatly from the pecuniary loss occasioned by their unexpected death. And by a careful medical examination of the parties proposing to avail themselves of this privilege, and by a resolute rejection of all objectionable lives, the society might with great safety undertake the risk of a member dying in the space of 10 years, or a similar short term.

199.—In the presence of the existing Act of Parliament respecting these associations, by which their action is much restricted, and in the absence of all superintendence on the part of government over their financial and general operations, the plan above suggested cannot be adopted; nor would it be prudent to do so, even if the act permitted this or other modifications in their system, until some regulations are enforced to act as a check to the practical errors, which daily arise in the working of many of these societies. But it is probable that a permanent Benefit Building society of unexceptionable respectability might secure the co-operation of a Life assurance office, which would undertake the risk. In any case, it is greatly to be desired, that, if ever the other

objections and deficiencies in the Act undergo revision, some step will be taken for introducing, as far as may be practicable, into their operations the important benefits of Life assurance. Should that be done, to make the application equitable, the system of Life assurance adopted by the *Building society* should be strictly *mutual*; otherwise, the limited membership of the subscribers, in a permanent association, would deprive them of a fair participation in the Profits, which would probably accrue to the later members. There would arise no unnecessary risk therefrom, any more than in an ordinary Mutual Life office; and even the extra risk contingent upon the first few years might easily be averted by the purchase, at a small percentage, of the Temporary protection of an established company. In general the mutual principle is also recommended, because it must be considered as combining all that was wanting to make Life Assurance perfect; inasmuch as it removes the only selfish objection to which that beneficent invention of science was formerly open: *viz.*, that those, who *live*, pay for those who *die* beforehand; since the periodical allotments of Bonus, if calculated upon safe principles, tend continually to restore the balance of advantage to those members, who survive each division of Profits.

Building Society shares as security for Fidelity in situations of Trust.

200.—Instead of making the shares payable at *death*, in the event of a member's dying before the completion of his subscriptions, another valuable modification might be introduced.

In consideration of a small extra payment beyond the monthly share subscriptions, the members of the Building society might *mutually guarantee the fidelity of each other*, if employed in situations where such security were required. Provided always, that, previously to affording such a guarantee to a member, due care were taken to make strict enquiry respecting his past and present character.

The rates of contribution for Fidelity assurance may be ascertained from statistical data, which can be rendered as complete as the corresponding data representing the laws of mortality; and it is plain that the payments of a member might be so combined, that the amount of a share could be made payable, at the end of the given number of years, to himself or his family, if

he continued honest ; at the same time that it might be made payable to his employer for the time being, in case he should, in the mean time, commit a breach of trust ; in which latter case he himself would forfeit all claim upon the society.

201.—Guarantee societies have been established within the last few years solely to obviate the defects of suretyship by private bondsmen, a practice which was found to be attended with various inconveniences and objections ;—instances having constantly occurred in which persons of great respectability were obliged to forego excellent situations, from either the great difficulty of obtaining security, or a repugnance to place their relatives or friends under the obligations involved therein. A Fidelity society, commonly called a Guarantee society, undertakes, on the annual payment of a small sum, to make good, in case of default by fraud or dishonesty, any losses which may be sustained to an amount specifically agreed upon ; and by such means obviates the necessity for private sureties as well as the obligations arising therefrom, which often prove as prejudicial to the best interests of the employers as to the employed.

To the employer the guarantee of such a society is much more valuable than the bond of any individual, inasmuch, as it is not liable either to doubt or depreciation. In large establishments, both public and private, where the securities are numerous and the sureties often resident in many different parts of the country, and known only by repute, it becomes almost impossible to watch over their continued existence and solvency ; and cases of default have frequently occurred when, upon investigation, it has been found that all the sureties have been dead or gone away for many years.

By these means, security has been provided only for the fidelity of the employed : but the plan of a Guarantee society is still defective, in consequence of its being considered virtually not to offer a sufficient discouragement to dishonesty. It has been felt that a pure Fidelity-policy does not even, in point of morality, possess the advantage afforded by private suretyship,—inasmuch as the son, to whose nature it would be repugnant, by his misconduct, to bring disgrace and ruin upon his relations or friend, might feel little anxiety as to the pecuniary loss inflicted upon a guarantee society. In other words, it is conceived that a disposition to fraud is not effectually checked,—the reflection arising, that as the rates of a guarantee society pre-suppose the existence of such a disposition on the part of, at least, one out of every two hundred of its selected assurers, the loss sustained by the society through such defalcation would be but the result of the "*Average*."

202.—In the plan here suggested, which would be equally applicable, if not more so, to a Life Assurance or other Investment society, the subscribers, while satisfying the requirements of their employers in respect to their honesty and good conduct, would receive an additional stimulus from the reflection, that all their subscriptions would become forfeited in the event of their acting dishonestly. Hence, the greatest moral benefits might be expected, as the members of such an association would serve as a mutual check on each other. A new incentive to honesty would be gained ; and while a sum of money would guarantee the fidelity of the Investor, the mere fact of his admissibility to such an assurance would be a strong testimonial to his character. At the same time various practical regulations would, of course, be requisite to secure the judicious working of this suggestion.

On the joint combination of Life and Fidelity Assurance in co-operation with the ordinary principles of Building Societies.

203.—The methods of Life assurance and Fidelity guarantee suggested above, may be either adopted *separately* for the convenience of different members of the same society, or *combined* together in such a manner, that, while on the one hand, a non-borrower might subscribe, with the view of receiving his share in full at the end of a given term of years; yet, in the event of his *previous death* or committing a *breach of trust*, the amount of his share might be made payable to his family or to his employer, whichever happened to be the case.

In the system of a permanent building society, combining the three advantages alluded to, the rates of monthly subscription per share can be calculated, so as to enable the association with safety to undertake the payment of an investor's share in full at the end of the specified term of years, if he be alive; at the same time, that the same amount of share would be payable to his family in the event of his previous death, or to his employer should he commit a breach of trust. Great care being taken, of course, to examine his state of health, to see that he is a sound life, and to ascertain that his past and present moral character is free from stain or reproach.

204.—The adoption of the important considerations, which form the subject of the latter articles of this chapter, would necessarily introduce some complication into the affairs of a Building society; but it should be borne in mind, that the scope and consequent prosperity of all institutions of this kind depend upon the variety of the cases, to which their provisions are adapted; and that, while a society might offer all, or any of, the advantages we have enumerated to those among its members, whose situation might render them desirable, there is no reason why the adoption of either guarantee or life assurance should be made compulsory on other members, who have no occasion for them. One man may wish to assure his life; another may stand in need of security for his honesty; a third may require both the one and the other; and a fourth may be so circumstanced as to have no occasion for either. The several cases we have supposed are, in reality, those not of individuals but of separate classes, to each of which the same society may offer the advantage suited to their own peculiar requirements, and, by thus multiplying its members, increase its stability and diffuse its benefits.

[The suggestions, advanced above respecting the *Combination of the risks of Life and Fidelity Assurance* in one Policy, have been recently adopted (without reference to the Building Society question) by several new Companies, which have been formed specially for that object.]

Provisions of
Friendly So-
ciety Acts of
10 Geo. 4 c.
56, and 4 & 5
W. 4, c. 40,
extended to
this Act.

IV. And be it further enacted, That all the provisions of a certain Act made and passed in the tenth year of the reign of His late Majesty King *George the Fourth*, intituled, *An Act to consolidate and amend the Laws relating to Friendly Societies*, and also the provisions of a certain other Act made and passed in the Fourth and Fifth years of the Reign of His present Majesty King *William the Fourth*, entitled, *An Act to amend an Act of the tenth year of his late Majesty King George the Fourth, to consolidate and amend the Laws relating to Friendly Societies*, so far as the same, or any part thereof, may be applicable to the purpose of any Benefit Building society, and to the framing, certifying, enrolling, and altering the rules thereof, shall extend and apply to such Benefit Building society and the rules thereof, in such and the same manner, as if the provisions of the said Acts had been herein expressly re-enacted.

Receipt en-
dorsed on
mortgage to
be sufficient
discharge
without re-
conveyance.

V. And be it further enacted, That it shall be lawful for the trustees named in any mortgage made on behalf of such societies, or the survivor or survivors of them, or for the trustees for the time being, to endorse upon any mortgage or further charge given by any member of such society to the trustees thereof for monies advanced by such society to any member thereof, a receipt for all monies intended to be secured by such mortgage or further charge, which shall be sufficient to vacate the same, and vest the estate of and in the property comprised in such security, in the person or persons for the time being entitled to the equity of redemption, without it being necessary for the trustees of any such society to give any reconveyance of the property so mortgaged, which receipt shall be specified in a schedule to be annexed to the rules of such society, duly certified and deposited as aforesaid.

Not to au-
thorize in-
vestment of
funds in
Savings
Bank.

VI. Provided always, and be it further enacted, That nothing herein contained shall authorize any Benefit Building society to invest its funds, or any part thereof, in any savings bank, or with the Commissioners for the reduction of the national debt.

VII. And be it further enacted, That all Building societies established prior to the first day of *June*, One thousand eight hundred and thirty-six, shall be entitled to the protection and benefits of this Act, on their present rules being duly certified and deposited as directed by the said recited Acts; and no such society entitled to the benefits of this Act until their rules shall so certified and deposited; and that no such society shall to alter in any manner the rules under which they are governed.

VIII. And be it further enacted, That no rules of any such society, or any copy thereof, nor any transfer any share or shares in any such society, shall be subject or liable to or charged with any stamp duty or

And be it further enacted, That this Act shall be deemed a Public Act, and shall extend to *Great Britain, Ireland, and Berwick-upon-Tweed*; and be the power of as such by all judges, justices, and other without the same being specially shown or

General Observations.

The said Act contains many imperfections, briefly thus:—

1. The value of the shares is fixed, without any apparent regard to the subscriptions at £1 per share per annum; as the members are concerned, the value of their subscriptions to the amount of the shares to do with; and there is no provision that the shares should not be at disposition are fixed in corresponding

whether it may not have

been intended by the Act that a member's interest in a society should be limited to £150; but this seems improbable, as in that case no society would be of any practical service, since it would scarcely enable a member to purchase a house by means of an advance. For, in general, the greatest present value advanced on shares of the amount of £150 in terminating societies would be only £75 or £80, and with so small a sum scarcely a hovel could be purchased.

In the case of *Morrison v. Glover*, 19 Law J. Rep. (N.S.) Exch. 20, 21 Nov. 1849, it was held that a member may hold more than £150 worth of shares.

207.—There is no provision in the Act for societies *borrowing money*; and, although the Registrar, until lately, has certified Rules with such a power; yet it has been considered that it was not the intention of the legislature that societies should pledge the credit of their members for money borrowed, even for the extension of its business.

There is no reason, however, why the shares of the same society should not be of various amounts; and the following clause, which we have prepared, enables Deposits to be received, whereby loans would be rendered unnecessary:—

“The shares shall be of the ultimate value of £ each, realizable by a monthly payment of , and of such other amounts, and realizable in such periods of years, and in consideration of such single or periodic payments, as the Board of Directors may, from time to time, deem fit.”

It will be observed that the deposit receipts, being in the form of Paid-up or Realized shares, the restriction of Section 1 of the Act, Art. 205, as to the payment of dividends, is met.

By way of example:—Suppose £25 to be tendered to a Building Society on deposit for the term of three years at $4\frac{1}{2}$ per cent. interest, the Society would issue a Paid-up Share Receipt for £25, reciting that it was withdrawable at the end of the agreed period, but bearing interest in the meanwhile at $4\frac{1}{2}$ per cent. by way of Bonus.

208.—By the words “freehold or leasehold property, or other real estate,” inserted in the introductory part of this statute, it follows that copyhold property, which is comprehended in the term “real estate,” may be acquired and enfranchised through the instrumentality of Benefit Building Societies. We recommend our readers to examine the plan, which we have devised for the *Enfranchisement and improvement of Copyhold and Church leasehold* property, by the formation of Copyhold Enfranchisement Societies, registered under the Building Society Act. (See Division III. of the Treatise, new edition, advertisement at back of cover of this work.)

209.—*Mortgages to a society are free from Stamp Duty.*—By section 37 of the 10th G. 4, c. 56, Bonds and other securities and assurances, given to or on account of any Friendly society, and any instrument or document required, or authorised, to be given, or made, to or by any Friendly Society, are expressly exempted from any stamp duty whatever; and by the combined operation of this clause and the 4th section of the Building Societies Act, all mortgages made to the trustees of Benefit Building Societies are freed from stamp duty.

210.—*Income Tax.*—A society is liable to pay income-tax upon its profits, that is to say, on the *interest part* of the repayments of borrowing members, but not upon the other receipts, as they form the working capital of the association. It should be remembered, however, that if a society pay income-tax on such of its receipts as arise from interest, a corresponding deduction must be made, at the close of the society or a person's membership, from the amount of his share then due; the deduction affecting that portion of the full share which represents the accumulations from interest.

211.—*Minors.*—From the circumstance of the 32nd sec. of stat. 10 Geo. IV., cap. 56, authorizing minors to become members of friendly societies, infants may also become members of societies established under the Building Society Statute,

6 & 7 Wm. IV., cap. 32, and enjoy all the advantages derivable therefrom, as investors or depositors, but they cannot enter into obligations as borrowers or mortgagees, until they attain their majority. And "although an infant hath capacity to purchase, yet, at full age he may agree thereunto, and perfect it, or, without any cause to be alleged, waive or disagree with the purchase."

212.—Building societies may lend money for the purpose of redeeming existing mortgages, or to meet any other exigencies of a member, on the security of a house or property already in his possession. Such security would be within the 21st section of 10 Geo. IV., c. 56, and, therefore, vest in the trustees or treasurer for the time being, although the property was in his possession long before the date of his advance. (See cases of *Outbill v. Kingdom*, 1 Exch. Rep. 494; 17 Law J. Rep. N.S. Exch. 177; and *Morrison v. Glover*, 19 Law J. Rep. N.S. Exch. 20, 21 Nov. 1849.)

213.—It is expedient that the Rules should provide that, on the death or removal of any Trustee, the resolution, appointing a new trustee should be duly enrolled with the Registrar. Unless this be done, it will be very difficult to prove to the satisfaction of a purchaser, in case of any future sale or raising of money by the member, that the persons who signed the receipt on the mortgage deed were the then trustees of the society.

214.—The Redemption and Foreclosure clauses should be framed with great care, so as to define the exact mode, in which the amount to be claimed of a borrower in redemption of his mortgage shall be calculated, and as to whether he is to participate in the profits of the society. Nine out of ten of the law suits of Building Societies have been in connection with disputes as to the amount to be charged on redemptions. The remarks on this subject of Vice-Chancellor Wood, in the case of *Fleming v. Self* (April, 1854), and those of the Lord Chancellor Cranworth, before whom the case afterwards

came (July, 1854), are full of instructive information. They confirm the views we have advanced in Art. 50, as to liability of borrowers to continue their subscriptions in a terminating society, until the investors' shares are realized.

215.—A Joint Stock Company cannot become a member of a Building Society (*Dobinson v. Hawks*, 16 Sim. 407, 20 Nov., 1848), where it was held that a number of persons forming a Joint Stock Brewery Company could not be members of a Building Society.

216.—*The course of proceeding necessary to be adopted to obtain the Enrolment of the Rules of the intended Society, is as follows :—*

Two copies of the rules, written (or printed) on paper or parchment, signed by three members and a clerk or secretary, must be sent (with the fee of one guinea) to the registrar of friendly societies in England, Scotland, or Ireland, as the case may be, for the purpose of ascertaining whether the rules are calculated to carry into effect the intention of the parties framing them, &c., and are in conformity to law, and the provision of the statutes in force relating to such societies ; and the registrar is to give a certificate on each of the said copies, that the same are in conformity to law, and to the provisions of the statutes in force relating to such societies, or point out in what part or parts the said rules are repugnant thereto. The registrar is to return one of the copies to the society, and keep the other, *and the rules may be legally acted upon from the time when the same are certified by the registrar.* (4 & 5 W. IV., c. 40, s. 4; and 9 & 10 Vict. c. 27, s. 12.)

If any alterations or amendments are at any time made in such rules, the same course must be pursued ; and an affidavit of the clerk or secretary, or one of the officers of the society, that the provisions of the Acts under which the rules have been enrolled have been complied with, must also be transmitted. The affidavit should be in the following form :—

I, ———, of ———, the clerk (or secretary, or one of the officers) of the ——— society, held at ———, in the county of ———, make oath

and say, that in the making the alterations (or amendments) in the rules of the said society, the provisions of the Act under which the rules of the said society are enrolled have been duly complied with.

*Sworn this — day of —, 18—, }
before me*

A Justice of the Peace acting for —

217.—The fee payable to the registrar for his certificate is one guinea, but he is not entitled to a fee in respect of any alteration or amendment of any rules upon which one fee has been already paid within the period of three years, nor for any certificate to rules, &c., which are copies of any that have been certified by him, and duly enrolled. (4 & 5 W. IV, c. 40, ss. 4, 5.)

218.—Besides being exempted from the operation of the Joint Stock Companies Registration Act, a Benefit Building society, by having its rules duly enrolled, derives many other benefits; for—

1st.—The rules are binding, and may be legally enforced.—(10 Geo. IV, c. 56, s. 8.)

2nd.—Protection is given to the members, &c., in enforcing their just claims, and against any fraudulent dissolution of the society. (s. 26.)

3rd.—The property of the society is declared to be vested in the trustee or treasurer for the time being. (s. 21.)

4th.—The trustee or treasurer may, with respect to property of society, sue and be sued in his own name. (ib.)

5th.—Fraud committed with respect to property is punishable by justices. (s. 25.)

6th.—Disputes, in certain cases, are to be settled by reference to justices, or arbitration, whose order, as awarded, is final. (s. 27.)

7th.—Priority of payment of debts, in case an officer, &c., of the society become bankrupt, insolvent, has an execution, &c. against his property, or dies. (4 & 5 Wm. IV., c. 40, s. 12.)

8th.—In case of death of members, payment may be made of any sum not exceeding £20, without the expense &c., of obtaining letters of administration. (10 Geo. IV., c. 56, s. 24.)

9th.—Members are allowed to be witnesses in all proceedings, criminal or civil, respecting property of the society. (4 & 5 Wm. IV., c. 40, s. 10.)

Lastly.—No re-conveyance of the mortgaged property is necessary on the termination of the society, or on repayment of the money advanced. (6 & 7 Wm. IV., c. 32, s. 5.) It is also exempt from the operation of the Joint Stock Companies Winding-up Act, 1848, the 11 & 12 Vic., c. 45, for, by the second section of that Act, it is enacted, “That all Benefit Building societies, other than such as are duly certified and enrolled under the statute in force respecting such societies, shall be liable to the operation of this Act.

219.—Respecting *Arbitration* see Art. 78.

220.—In addition to the power given to the members to alter, amend, annul, or repeal the rules, and make new rules, the 10 Geo. IV. c. 56, s. 9, enacts, “that no rule shall be altered, rescinded, or repealed, unless at a general meeting of the members, convened by public notice, signed by the secretary, or president, or other principal officer or clerk of such society, in pursuance of a requisition for that purpose, by seven or more of the members of such society; the requisition and notice to be publicly read at the two usual meetings to be held next before such general meeting; or unless a committee shall have been nominated for that purpose at a general meeting convened in manner aforesaid, in which case the committee may make such alterations or repeal; and unless such alterations or repeal shall be made with the concurrence of three-fourths of the members present at the general meeting, or by three-fourths of the committee.”

AS TO VOTING FOR MEMBERS.

221.—*As regards the qualification to Vote for Members of Parliament*, the 8 Hen. VI., c. 7, limited the right of voting for counties to persons possessing free land or tenement of the yearly value of 40s. It is doubtful whether

Voters for
Counties.

before this statute the right extended to all freemen, or only to freeholders. Dalton says, that "by the common law, all Freeholders. "freemen of England had a voice in the election of these "knights within the counties where they dwelt." And Prynne says, "every inhabitant and commoner in each county had "a voice in the election of knights, before 8 Hen. VI., whether he "was a freeholder or not." That statute ordains and establishes that knights of the shires, or Members of Parliament in England, shall be chosen by people, whereof every one of them *shall have free land or tenement to the value of forty shillings by the year at the least above all charges.*

This enactment is the foundation of the present law, as regards the right to vote by 40s. freeholders in counties.

222.—The words *free land or tenement*, mean an estate in lands or tenements of *freehold tenure*. It is something more than a *freehold*, which includes any estate of an uncertain determination, and may exist in lands subject to customary services, and therefore of a *base*, and not *freehold tenure*, although a freehold *interest*. It was not until the passing of the Reform Act, 2 Wm. IV., c. 45, Copyholders. that copyholders and customary freeholders had the right to vote. By the 19th section of that Act, persons seized of land or tenements of copyhold, or any other tenure whatever, are entitled to vote; but the estate must be of the clear yearly value of *ten pounds*.

By the same Act, the right of freeholders to vote Freeholders for life. is continued, with the reservation, that if the claim is in respect of any freehold lands or tenements, whereof such person may be seized for his own life, or for the life of another, or for any lives whatsoever, he shall be in the *actual* and *bonâ fide* occupation of such lands or tenements, or the same shall have come to such person by marriage settlement, devise, or promotion to any benefice or office, or the same shall be of the clear yearly value of not less than *ten pounds* above all rents and charges.

223.—The 7 & 8 Wm. III., c 25, s. 7, enacts that no person Trustees or Mortgagees. shall be allowed to have any vote in elections, for or by reason of any trust estate, or mortgage, unless such trustee or mortgagee be in actual possession or receipt of the rents

and profits of the same estate ; but the mortgagor, or *cestuique trust*, in possession, shall vote for the same estate, notwithstanding such mortgage or trust ; and all conveyances of any messuages, lands, tenements, or hereditaments, in any county, city, borough, town corporate, port, or place, *in order to multiply voices, or to split and divide the interest in any houses or lands among several persons, to enable them to vote at elections*, are declared to be void, and no more than one single voice shall be admitted for one and the same house or tenement.

Conveyances
to multiply
voices void.

224.—The 18 Geo. II. c. 18, s. 5, enacts, that no person shall vote in such election, without having a freehold estate in the county, of the clear yearly value of 40*s.* over and above all rents and charges, payable out of or in respect of the same ; or without having been in the actual possession, or in receipt of the rents and profits thereof, for his own use above twelve calendar months, unless the same came to him within that time by descent, marriage, marriage settlement, devise, or promotion to a benefice in a church, or by promotion to an office ; or in right of any freehold estate which was made or granted to him fraudulently on purpose to qualify him to give his vote ; or should vote more than once at the same election under penalty of 40*l.* and costs of suit. The 6 Vic. c.

Mortgagee.

18, s. 74, enacts that no mortgagee of any lands or tenements shall have any vote in the election of a Member of Parliament, at which freeholders have the right to vote, for or by reason of any mortgage estate therein, unless he be in the actual possession or receipt of the rents and profits thereof ;

Mortgagor.

but that the mortgagor in actual possession or in receipt of the rents and profits thereof shall and may vote for the same, notwithstanding such mortgage ; and

Trustee.

that no trustee of any lands or tenements shall in any case have a right to vote in any election for or by reason of any trust estate therein ; but that the *cestuique trust* in actual possession or in receipt of the rents and profits thereof, though he may receive the same through the hands of the trustee, shall and may vote for the same, notwithstanding such trust.

The 2 Wm. IV. c. 45, s. 20, provides that persons
 Leaseholders. having a leasehold interest of the annual value of 10*l.*
 for the term of *sixty years*; or of the annual value of
 50*l.* for the term of *twenty years*, are entitled to be registered as
 voters.

225 —By the same section, it is enacted that every person who
 shall occupy as tenant, any lands or tenements for
 Occupiers. which he is *bond fide* liable to a yearly rent of not less
 than 50*l.* shall be entitled to vote.

226.—The foregoing is a short summary of those qualifications to
 vote for Members of Parliament for counties, which are likely to be
 obtained through the instrumentality of Benefit Building, Freehold
 Land, and other similar societies. As, however, qualifications to
 vote for Members for cities and boroughs may be obtained through
 the instrumentality of those societies, it will be as well to state the
 nature of the qualification which can be so obtained.

The right to vote for cities and boroughs under the 2
 Wm. IV. c. 45, is, by s. 27, given “to every person of
 Voters for
 cities and
 boroughs. “full age, and not subject to any legal incapacity, who
 “shall occupy, either as owner or tenant, any house,
 “warehouse, counting-house, shop, or other building, being either
 “separately, or jointly with any land occupied therewith by him as
 “owner, or occupied by him therewith as tenant, under the same
 “landlord, of the clear yearly value of 10*l.*”

The elective franchise is possessed and obtained by other means,
 which need not be described here, because these societies will not be
 affected by those provisions.

227.—In conclusion, we may remark that, in the event of
 a new Act for Benefit Building Societies being introduced
 into Parliament, the following points are deserving of consi-
 deration :—

1.—Power for Building Societies to amalgamate with
 each other, or for one society to transfer its business to
 another.

2.—Provision for the Registrar, or other suitable party
 selected by the Society, to act as Receiver of the Re-

payments of the unexpired mortgages of any Society, which it is considered desirable should be dissolved.

3.—The restriction of £1 a month and £150 amount of shares to be rescinded.

Powers are also required :—

4.—To permit of a Society changing its seat of business from one county to another.

5.—To allow of advances being made on security, which consists collaterally, or in part, of personal sureties, or of Policies of Life or other Assurance.

6.—To permit of Land being bought in the gross by a Society, for division at *wholesale* prices among the members, —see remarks in Chapter II., Part 2, of this Division, on Freehold Land Societies. As such buying of Land is not contemplated by the Building Societies' Act, the Directors of Land Societies are obliged to incur the personal risk of purchasing themselves, and of trusting to subsequent allotments among the members ; thus opening the door to a strong temptation to the Directors to make a personal profit by adding a margin, before division, to the wholesale cost.

7.—To permit of Suburban Villages being erected on Land so purchased, for allotment among members desirous of purchasing Freehold Cottages ; and to permit of school-rooms, &c., being erected at a cost to be divided proportionately among such members.

The reader who is desirous of more detailed information on the Law of Benefit Building Societies, should consult the three admirable Legal Treatises by WILLIAM TIDD PRATT, Esq., and JOHN THOMPSON, Esq., Barristers-at-Law, and WILLIAM STONE, Esq., Attorney-at-Law.

PART II.

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PART II.

the general principles of Associations for Land Investment exemplified in the cases of FREEHOLD LAND SOCIETIES, BUILDING COMPANIES, and SUBURBAN VILLAGES, &c., &c.; also on the application of LIFE ASSURANCE and the TONTINE principle to the purchase of FREEHOLD property at Home and in the Colonies; with suggestions for the establishment of BENEFIT EMIGRATION SOCIETIES.

CHAPTER I.

FREEHOLD LAND SOCIETIES.

§. 1.—The same principle of co-operation and mutual assistance, upon which we have shewn Benefit Building Societies to be based, may be applied, in various ways, to the formation of other institutions, tending to improve the condition of the industrious classes, or presenting profitable modes of investment both for the savings of persons of limited means, and for the capital of great money holders. In the following Chapters it is not our intention to notice, historically, the numerous schemes which have lately been proposed, or are now in contemplation, upon this principle, nor to enter fully into their merits and defects; but, we hope, by selecting from among them a few specimens, and by embodying, in the description of each, the general characteristics of the class to which it belongs, there will be sufficient material to enable the reader to apply the reasoning adduced in Part I, to judge for himself of the merits of any new institution, the features of which are not exactly enumerated.

—In every Land Investment Society, there are usually two classes, as in the Benefit Building Societies, who

have in view distinct objects, which, diversified perhaps in their smaller details, form the basis of each association.

Among the candidates for attention, stand first in importance, numerous associations, which have recently come into existence under the name of "Freehold Land Societies;" at the same time that they tacitly subjoin the more modest appellation of Benefit Building Societies, and adopt similar Rules in their formation, for the purpose of being registered as participators in the privileges of the Act of Parliament relating to the latter institutions. Their chief object is acknowledged to be the extension of the elective franchise* within the present limits of the constitution. The purchase of property, until quite lately, being merely a secondary consideration, or rather a means to the attainment of the political end.

3.—These institutions have, therefore, as might be expected, received the support, and occupied the attention of some of the most active political economists of the present time. In consequence, however, of the difference between their mode of operation, and that of Benefit Building Societies, they can hardly be said to have any right to come within the provisions of the Act of Parliament by which the latter are regulated; and, by several leading authorities, it is held that serious legal difficulties are still likely to arise in the completion of their political purpose. They are, nevertheless, daily becoming more and more important, and increasing in popularity.

4.—Their object is simple enough, and easily understood. Proceeding on the principle, that land, when sold in the gross fetches a lower price, per acre, than when sold in small portions particularly in the vicinity of large towns, these societies purchase, with money obtained from external sources, successively, considerable estates, and divide the same among the members in allotments sufficiently large to constitute 40s.—

[* See Chapter 9, Part I, for details relating to the Law of Voting.]

freeholds. They undertake in this manner to enable persons with limited means to become county voters at a moderate expense. The estimate, upon which they proceed, is, that 40*s.* freeholds may thus be acquired at a price, which any skilled artizan in steady employment may accomplish in the course of 5 or 6 years (the time usually mentioned) by laying aside 1*s.* 6*d.* a week out of his wages for that purpose. It is obvious that, if this assumption be correct, (into which we will shortly examine,) a number of persons contributing to a joint stock fund would speedily raise sums large enough to purchase considerable estates; and the members might, from time to time, be put in possession of freeholds, on paying up the whole price, if they are able to do so out of their previous savings, or by giving a mortgage on the property, to be paid off by their periodical subscriptions as instalments. The scheme was first tried in Birmingham in a society formed by Mr. J. Taylor of that town. The workmen there had heard of the efforts of the Anti-Corn Law League to carry South Lancashire by registering as many of their members as could be persuaded to purchase 40*s.* freeholds. The average price of such freehold was separately £70; and it occurred to them, that, by combining the principles of accumulating a considerable fund through moderate weekly subscriptions, with that of buying land at a wholesale cost, and by dividing it in allotments to subscribers at the same price, 40*s.* freeholds might be brought within the reach of workmen, or at least of the sober and steady members of the skilled artizan class. Persuading others to join them, and securing the countenance and co-operation of several members of Parliament, the first Freehold Land Society was founded in the town of Birmingham in 1847.

5.—Its very first purchase has been referred to as an instance of the advantage of co-operation. The whole of an estate, for a portion of which, of sufficient size to be suitable for a single house, the owner declined to take less than 3*s.* 4*d.*

per yard, was actually bought for a sum, which enabled the society to convey it in lots to its members at 1s. 1d. per yard. These lots are said to have, thus, cost the new owners about £19 each; and many have erected dwelling houses upon them, while others are stated to have let theirs upon building leases, at a rent more than sufficient to give them the franchise. The rules of the society were certified on the 27th of December 1847, and at the end of the first year, its report announced, that the society had established six independent associations, *viz.*, in Dudley, Stourbridge, Coventry, Worcester, Wolverhampton, and Stafford, in which 2,108 members had subscribed for 2,837 shares; and that in Birmingham alone the subscriptions amounted to £500 per month. It was added that, the society had purchased an estate for £3,700, which had been allotted to 195 members; and "that the directors were proceeding to purchase others which would give a preponderating influence in the election of South Staffordshire and North Warwickshire."

6.—The impulse given by this remarkable success was so great, that, ere the termination of the second year, it was found advisable to hold a great conference at Birmingham, in order to organise a plan of general union and co-operation amongst the numerous associations which had sprung up. — At this conference there were present numerous members of Parliament, and delegates from societies in London, Coventry, Wolverhampton, Leeds, Doncaster, Wrexham, Barnsley, Darlington, Halifax, Hertfordshire, Gloucester, Bradford, Stourbridge, and Derby, &c. It now appeared that in Birmingham alone £15,000 had been subscribed, and four estates purchased; £2,500 being taken up by 1,800 subscribers.

In Derby 1,000 shares were reported as subscribed for by 700 individuals, chiefly of the working classes; and £700 paid up. In Leicester, although the society was only three months old, there were 400 subscribers for as many shares.

A National Freehold Land Society was reported as established in London, having 750 members subscribing for 1,500 shares, with £1,900 already paid up. In Marylebone 830 shares had been subscribed for since July 1849. In Wolverhampton they had 750 members, and had purchased two estates at a cost of £10,780, by which, in their eagerness to join, the shares had gone up to £10 premium (with how little just cause the reader can easily imagine). In Stourbridge, with a population not exceeding 8,000, the society had already 250 members subscribing for 298 shares.

Such were the facts laid before the conference, testifying the extraordinary rapidity with which these societies were spreading; and up to the present time they manifest unabated increase.*

7.—The business discussed at the meetings of the conference was the construction of the rules of the associations; the formation of a central association of members and friends of the movement, irrespective of their societies; and the publication of a paper under the name of the "Freeholder," to be devoted expressly to the advocacy of the object in view, and to be a record of legal decisions affecting their interests, and of other details relating to its progress. Considerable discussion arose with respect to the formation of a central committee; it was at once evident, that no national machinery, by which the various local societies would be regulated and governed, would be possible even if desirable. The practical experience of one of their most able supporters, Mr. Cobden, M.P., suggested the formation of an executive committee with a paid secretary, to whom questions could be communicated

[* From the time of the first conference at the end of 1849, fifty new Freehold Land Societies were formed, in less than six months, in other leading towns. The total number of members, in all the associations, amounted to 14,281 subscribers, for 20,475 shares. A later return, to October 1850, states, that there were then eighty societies in operation, with numerous branches; and that the sum of £170,000 had been contributed upon 30,000 shares of the ultimate value of nearly one million of money.]

he is glad to see him thus employing the fruits of his industry and frugality.”*

9.—But, though the promoters may be sanguine as to the ultimate results of their scheme, on account of the present apparently flourishing position of many of the existing Freehold Land Societies, when measured alone by the great number of shares subscribed; yet care does not appear to be exercised, to prevent them from falling into the serious errors of reasoning and practice, that have, unfortunately, too often characterized the workings of their prototypes, the Beneficial Building Societies. The mode of allotting the funds of the association differs, but little, from that of the latter institution, while the principle involved is not identical. There is one distinction: the Freehold Land Society is expressly formed to avail itself of wholesale prices in land; and yet under the Building Society Act, it has no authority itself to purchase estates and divide them; and it is powerless, unless a loan can be procured from some external source in sufficient amount. Hitherto, the movement has been kept up by the liberality of political supporters, who provide the necessary funds in each case; and the rapidity of the extension of these associations proves how little importance is attached to the contingency, that, not only will the price of land, in all probability, rise by this increase in the number of purchasers, but, in many cases, freehold property will not be obtainable, at all, in such convenient situations and of such suitable magnitudes, as to meet the object desired.

10.—The Rules, which have come under our notice, contain no definite understanding, as to the adjustment of the duration of the payments of the members, and no real principle by which, whatever be the time of entry, the profits can be equitably divided among the shareholders, nor any sufficient provision, by which a member, who may wish to

* Speech of Lord John Russell, 5th June, 1849.

withdraw, may be secured from the loss of his right to some benefit from the past success of the association ; although, in many of the societies, in addition to the weekly contributions of 1s. 6d., or thereabouts, by which the positive wholesale cost of the land is to be repaid, an extra payment by way of interest is now being required from the allottees, varying from $5\frac{1}{2}$ to $6\frac{1}{2}$ per cent. Yet the rules do not seem to guard against an inequality in the advantages that may be obtained by the members, according as they have their land allotted to them at once, or after several years, such as ten or twelve, from the period of commencing their subscriptions; and it is far from improbable, that the ultimate cost to each member of his little property will be widely different. This could only be obviated by the adoption of some more systematic and tabular scale of subscriptions than is at present in use, so as to regulate the duration and amount of the payments by a fixed standard of years and rate of interest, (as in chap. vii., part 1,) and by paying strict attention to the importance of making the association perfectly mutual, so that the profits on cheap wholesale purchases may go to the general fund, and not to benefit incidental members to the detriment of their successors. The main secret of the prosperity of institutions of this kind consists in the correct adjustment of the relative position of each member to the exclusion of every attempt at favouritism ; and this depends upon a clear understanding existing between the board of directors and the shareholders. We fear that it is too rashly stated, that a freehold qualification for a county can be obtained at the small and definite sum of £20. Such promises should rather be limited to a statement, that while the directors remain responsible managers, all the wholesale property, which is bought, shall be divided without reservation of profit to those persons who primarily advanced the money, and that the members of the association shall have its refusal at cost price. For whether the cost is to be £20, or to range up to £50, and

(a) even £60, is a matter of vital importance to the success of the principle. It has happened that at Birmingham several persons obtained sufficient land to give them a qualification for so little as £20, but that arose, in all probability, from accident, and should not be put forward, as it is constantly, as the standard of the price of future purchases.

11.—To the majority of members the pecuniary advantage will rank above the political privilege, and to them the most important question will be, what it will practically cost to

[(a) The following figures from Mc Culloch's "British Empire" are applicable in reference to the expectations of these Societies. The average price of land is thirty years' purchase.

Rent per acre in 1842-3, as determined by the Assessments under the Property and Income Tax Acts :—

ENGLAND.							
	£	s.	d.		£	s.	d.
Bedford	1	5	5	Somerset	1	12	7
Berks	1	4	8½	Southampton	0	14	11½
Bucks	1	5	3½	Stafford	1	9	1½
Cambridge	1	8	2½	Suffolk	1	3	8
Chester.....	1	8	7	Surrey	0	17	10
Cornwall	0	18	2½	Sussex	0	18	2½
Cumberland.....	0	12	4½	Warwick	1	11	6½
Derby	1	5	8½	Westmoreland.....	0	11	0½
Devon	0	18	9½	Wilts.....	1	3	4½
Dorset.....	0	19	0½	Worcester	1	10	11½
Durham	0	15	4	York	1	1	4½
Essex.....	1	6	3½	<i>Average</i>	1	3	5½
Gloucester	1	7	10				
Hereford	1	2	9½				
Hertford	1	1	8½				
Huntingdon.....	1	6	2½				
Kent	1	6	7½				
Lancaster.....	1	8	11½				
Leicester.....	1	14	10½				
Lincoln	1	8	0				
Middlesex.....	2	2	11				
Monmouth.....	0	18	3½				
Norfolk	1	5	4½				
Northampton	1	9	1				
Northumberland	0	13	11½				
Nottingham	1	6	5				
Oxford	1	4	1½				
Rutland.....	1	7	5½				
Salop.....	1	4	5				

WALES.

Anglesea	0	14	10½
Brecon	0	5	9
Cardigan	0	7	4½
Carmarthen	0	10	1½
Carnarvon	0	8	7½
Denbigh.....	0	14	0½
Flint	1	4	9½
Glamorgan	0	10	2½
Merioneth.....	0	5	1
Montgomery	0	9	7
Pembroke.....	0	11	1½
Radnor	0	7	1½
<i>Average</i>	0	9	11½

such a quantity of land, as will produce, by being leased otherwise, an income of £2 a year, or, what will be annual pecuniary profit arising from the purchase. They calculate that, if even £30 be the average price of such an acre, £100 would give 6*l.* 13*s.* 8*d.* a year. This alone, above the abstract result of a vote, would be so great an action, as an advantageous investment, that it would be by the best the market would afford, more especially with such a rent security as that of land. In the extreme case, where the Birmingham Society bought land, wholesale, which only cost £20 for the £2 a year, the rate per cent. of annual

IRELAND.—1846.

LEINSTER.			ULSTER.		
	£	s. d.		£	s. d.
.....	1	0 1½	Antrim	0	18 4½
.....	1	2 1	Armagh	1	0 9½
.....	0	18 7	Cavan	0	14 8½
y	0	15 6	Donegal	0	5 1½
.....	0	14 5	Down	0	19 11½
d	0	15 8½	Fermanagh	0	11 1½
.....	1	7 11	Londonderry	0	11 6½
.....	1	14 5	Monaghan	0	17 3½
.....	0	11 11	Tyrone	0	9 6½
ath	0	18 0	Average	0	12 10
d	0	18 7	Cultivated	3,496,112	acres.
v	0	12 5	Mountain	1,764,370	„
ge	0	17 6			
ed	4,092,701	acres.	CONNAUGHT.		
in and Bog	731,886	„	Galway	0	8 3½
			Leitrim	0	8 9
MUNSTER.			Mayo	0	6 1½
.....	0	9 3	Roscommon	0	13 4
.....	0	13 1	Sligo	0	11 4
.....	0	7 2½	Average	0	8 8½
k	1	3 5½	Cultivated	2,273,177	acres.
ry	0	19 10½	Mountain	1,906,002	„
rd	0	15 2½			
ge	0	14 0			
ed	4,019,721	acres.			
n, &c.	1,893,477	„			
TOTAL.					
	Acres.			£	s. d.
ed	13,881,711		Average Rent	0	13 5½
rated	6,295,735		Average of Cultivated ..	0	19 3

profit was a perpetual income of £10 a year. The improbability of such good fortune recurring ought to be sufficient to rouse the industrious classes into making further enquiry into the practicability of these new candidates for popularity. The more so, when the member is required to pay for this enormous advantage by such easy instalments as 3s. or 4s. a fortnight for five or six years. If the principle be good, when abstractedly considered, it is unnecessary and unwise to expose it to suspicion.

12.—Again, when the land is purchased, it will be utterly useless, in a pecuniary sense, to its owner, unless four or five can join together to let their fractions of territory to one tenant, or unless the purchaser contemplates building thereon for his own purposes. A mechanic in a manufacturing town cannot make any use himself of his land.* He is ignorant of its management, and can only make a profit from his purchase by letting it to others; and, even then, the expense of employing an agent, with the uncertainty of collecting his small rent regularly, would diminish the advantage of his purchase.† Hence, it appears probable, that much discontent will shortly arise among the poorer members of these societies, who have entered under the impression, that, in addition to the influence to be acquired by the possession of a county vote, they would be making a highly lucrative profit from their

* [The remarks in chap. 3, of this part, will suggest to the reader how serviceable Freehold Land Societies might be made in the establishment of Suburban villages, and in the furtherance of what is now denominated "Home Colonization," or the reclaiming of the extensive uncultivated, but excellent, waste lands in the United Kingdom]

† [With the existing law there is much uncertainty always attending the investigation of titles and conveyance of landed property, and considerable expense, which does not decrease in proportion to the diminution in the value of the allotment. The uncertainty, on the one hand, might, perhaps, be removed by a system of *Title Guarantee Assurance*, which, if adopted by the societies collectively, could be effected at a moderate premium; and, on the other, the expenses should, like the profits, come from the general fund of each association, in such a manner, however, that the allottees should pay the greater part thereof.]

savings. The comparatively rich member, who can take up six or seven shares or more, will reap benefit not only from the greater certainty of being able to turn his land to account, but, also, from the increase in the general profits of the association, that must accrue through the forfeited shares of those members, whose means of existence are too precarious to enable them to be regular in their payments.

13.—In the establishment of Freehold Land Societies their political object has been considered essentially before the question of their capabilities as an advantageous investment for money to the industrious classes; hence, it may fairly be expected that, as soon as the political excitement, by which they are now supported, has subsided, the directors and others will cease to be so ready to incur the risk of themselves purchasing wholesale tracts of land, for a re-sale of which, to the members, by the strict letter of the Benefit Building Society's Act, they can have no security whatever; and any attempt to mix up the pecuniary operations of the society, with their own voluntary engagements, will not fail to expose the association to litigation, expenses, and loss.

14.—To provide against these difficulties, as far as may be practicable, the operations of a freehold land society should be made more analogous to those of the permanent benefit building society, for which chap. vii., part I, contains a draft set of rules; so that the monetary payments, or contributions, may be for fixed periods independent of the duration of the institution, and its scope may be extended by rendering it, as the point of greatest importance, safe and attractive to pure *Investers*, or members who may not care for allotments, and also to others, who may, perhaps, by a change of mind, contemplate buying a *house* for their occupancy, from which a vote, though not for the county, would be afforded. The subscriptions would, thus, increase so rapidly as to render the purchase of wholesale land feasible even out of the funds of the association; and the legal objection to an aggregate purchase,

on behalf of the society, would disappear on the requisite number of members declaring themselves candidates for an advance of money on security of an allotment of the land to be purchased. To this might be adapted still greater extension by the establishment of Endowment Funds for young people, for which rates of weekly or monthly subscriptions might be so graduated, according to age at entry, independent of any law of mortality, that, on attaining the age of twenty-one they should come into a freehold qualification. The money could be received, by a similar machinery to that of the Savings' Banks, in small sums from pennies upwards, according to the means of the parents, or, even of the children or youths themselves contributing.

15.—In other words, Freehold Land Societies must be modified, so as to give to them more of the character of *Investment* Associations for non-borrowers, and the advances of money should not be limited to the procuring of the mere land, but might be extended with advantage to affording to the new proprietor the means of stocking and improving his freehold, so as to render it reproductive and fit for occupation. Were such a modification introduced, and some satisfactory and equitable principle adopted in the distribution of profits among the members, which, to judge by their recent discussions, is not the case, then a Freehold *Land* and *Investment* Society would constitute one of the best mediums for industrial savings that this country could present; and they would flourish, long after their fictitious popularity, as political instruments, had ceased. The draft rules in part 1 would be perfectly suitable to a freehold land society, if the investing shares were made £25, the payments weekly or fortnightly, and the repayments upon advances calculated at about 5 per cent. interest.

16.—Respecting the increase in the suffrage, we may remark, that the creation of county votes by the purchase of 40s. freeholds, is applicable to England and Wales alone;

* Of these 512,376 electors, many were inhabitants of large towns, and imbued with various shades of popular opinion and many in the agricultural districts independent of the influence of landlords. Against this must be placed upwards of 108,795 tenants-at-will, who, in consequence, as a class have no choice in the expression of a political opinion. The desire of the promoters of the new movement is, of course, to counterbalance this large influence by the creation of a number of small freehold voters equal to that of the tenant voters, especially by exertions in those localities where the numbers are not so disproportionate but that the balance may be turned.

17.—The fact should, nevertheless, not be overlooked, though although the mere purchase of such freehold property on moderate terms may be feasible, yet that the qualification for the franchise obtained is, in reality, for several years, fictitious inasmuch as, until the cessation of his payments, the member of the Freehold Land Society has not a *bonâ fide* interest to the extent of 40s. in the land, and is not, in law, entitled to vote. And the mere circumstance of his seeking to become the proprietor of a *perpetual* income of 40s. from the land which he is purchasing, is evidence that the annual payments during the term of his membership must far exceed that sum.

* [A more recent return is published, entitled "An Abstract of the Numbers of Parliamentary Electors in Great Britain and Ireland, according to the Registrations of 1848-9 and 1849-50." We learn from it that the total number of electors on the register for 1849-50 is 1,050,187. For the cities and boroughs, 471,502. For the counties, 578,685. The numbers last year were 1,041,203. For the cities and boroughs, 451,534. For the counties, 589,669. This shows a gain in the cities and boroughs of 19,968 and a loss in the counties of 10,984; making the increase in the whole constituency 8,187. The County constituency in England in 1848-9 was less than in 1849-50 and numbered 466,060 votes. This year the number is only 461,413, or 4,650 votes less than last year; so that nearly one-half of the total loss in the counties is in England where the system of Forty-shilling Freeholds prevails. The Forty-shilling Franchise does not apply to Ireland or Scotland.]

CHAPTER II.

DESCRIPTION OF THE TONTINE PRINCIPLE

AND ITS

APPLICATION TO ASSOCIATIONS FOR LAND INVESTMENT.

ART. 18.—We will now proceed to describe, briefly, the mode of speculation commonly called the Tontine, and to examine both its present application and its further extension to the purchase of property. The constitution of a Tontine Company differs from the plans considered in preceding chapters, as, instead of each and every member reaping an equal benefit from the association, the ultimate main advantages of a Tontine, whether in the acquirement of a large capital or other property, are obtainable only by one member, or by that limited number of individuals, out of a large body, who may prove to be endowed with extreme longevity.

19.—A few words respecting the origin of the principle, and the tone of the public mind at that time, may not be uninteresting.

In the year 1644, a Neapolitan, named Lorenzo Tonti, came to Paris, and, during a scarcity of money which then prevailed, proposed the formation of a kind of Life Rents or Annuities, which subsequently were designated, after him, Tontines, although the principle itself was in operation in Italy before his time. The Tontines, so proposed, differed from the afterwards ordinary popular lotteries in the contingency of the increasing, and maximum, advantage being deferred for many years, with the assurance only of a moderate profit beforehand, beginning at a definite rate. After tedious disputes in regard to his original proposal, which was at length rejected for a time, he substituted, in its

stead, a new plan for a large *Blanque* or Lottery, which, in 1656, obtained the royal approbation.* It was to consist of 50,000 tickets, each at two *Louis d'Ors*, so that the whole receipts would amount to 1,100,000 *Livres* (the *Louis d'Or* at that time being only eleven *Livres*); from this sum 540,000 *Livres* were to be deducted for building a stone bridge and an aqueduct. The expenses of the *Blanque* were estimated at 60,000 *Livres*, and the remaining 500,000 *Livres* were to be divided into prizes, the highest of which was 30,000 *Livres*. This lottery was never carried out. After some delays, by which the matter was retarded until after the peace in 1660, a Lottery was finally opened, and the tickets, at a cost of one *louis d'or*, were drawn publicly under the inspection of the police. The highest prize was 100,000 *Livres*, and was won by King Louis XIV. himself, who objected to receive it, and left it to the next Lottery, in which he had no ticket. Several other lotteries followed to such an extent, that, in the year 1661, it was ordered that all private lotteries should be forbidden under severe penalties, and this prohibition was repeated in 1670, 1681, 1687, and 1700. Since that time no other pure money lotteries have been allowed, but the "Loterie Royales," the profits of which were, in general, nominally, applied to public buildings, as was the case in regard to the magnificent Church of St. Sulpice in Paris.

20.—The first actual Tontine upon Lives was created in the month of December, 1689, and was practically an Annuity association. It was divided into 14 classes of annual revenue, in all, of 1,400,000 *Livres*. The Shares were 300 *livres* a-piece, and the proprietors, without regard to sex, were to receive a yearly dividend, commencing at 1 per cent., with benefit of survivorship by way of increase in income in each class. The first class contained children under 5 years of age; the second was composed of others between

* [See an interesting account of Lotteries and Tontines in the History of Inventions by Professor Beckmann of Gottingen.]

5 and 10; the third from 10 to 15; and so on for the other classes.

This Tontine was very imperfectly filled up; for, into the first class, there entered only 202 members, and equally few persons into the others; yet many other French Tontines were formed, subsequently, in 1696, 1709, 1733, 1744.

In the year 1726, the French King united the 13th class of the first Tontine, with the 14th of the second, all the shares of which were possessed by one person, Charlotte Bonnemay, the widow of Louis Barbier, a Surgeon of Paris, who died at the age of 96: this lady had ventured a stake of 300 Livres in each Tontine, and, in the last year of her life, she had for her annuity 73,500 livres, or nearly £3,600 a year for about £30.

21.—The last State Tontine in France was in 1759; after which an impression arose, very justly, that, as the lives did not die off so speedily as was expected, the rate of annuity allowed, in redemption of the capital subscribed, with interest thereon, was very onerous; hence, in 1763, the Council of State decided, that this sort of financial resource for the creation of capital for governmental purposes should not again be resorted to.

22.—In England and Ireland, as well as in France, various Tontines were established in the last and present century, some of which are still in existence. The object, originally, in France, was (as we have seen) to raise large sums of money, as a species of loan, to be repaid, principal and interest, by periodic dividends, which were to continue until the death of all the lives, the whole existence of which represented the duration of the loan. Such was the case where Tontines were created for the benefit of the state, when they were divided into classes, according to the respective ages of the members. The whole periodic income of each class was divided among the survivors of that class, until, at last, it fell to one, and, upon the extinction of that life, reverted to the

power by which the *Redemption* Tontine was created, and for which it became security for the due payment of the annuities. In this kingdom, however, the system has rarely been adopted as a measure of finance, and the speculation has generally been of a private character, to effect some commercial enterprise; in which latter case the whole capital invested, or the result thereof, whether property purchased or otherwise, fell to the lot of the last survivor. The lives, previously existing, having participated in the increasing dividends of the company.

23.—Of the State Tontines in England and elsewhere we have authentic records and *statistical details, deduced to a comparatively modern date. The last was opened in 1789, which was to consist of about 10,000 shares of £100 each, and the benefit of survivorship on which shares was promised to the subscribers. But only 3,518 lives were put in by that body, the other contributors having soon afterwards preferred a long annuity to the tontine. To keep faith with those who held to the original contract, the Treasury was obliged to take the remaining shares, and to appoint a nominee for each, who were thence called "*Government nominees*." They were chosen as follows:—the class under twenty consisted of the children of the nobility and gentry whose names, age, parents, and residence were returned by the clergy of the several parishes; the other elder classes consisted of well known freeholders of property, persons assured in the Amicable Life Office, and so on.

Among the 22,352 nominees altogether registered by Mr. Finlaison, there was only one instance of a person passing the age of 98; an old lady at Wimbledon, who lived to be 100 years old, and who, as it chanced, was in the first Tontine of 1693. On this point, he remarks, that when, in statistical statements, many instances are set down of old people passing their 100th

* 1. Report to the Lords Commissioners of H. M. Treasury, by John Finlaison, Esq., of the National Debt Office. 31 March, 1829.

2. W. Kersseboom on the Life Annuitants in Holland. 1748.

year, and some dying at much more advanced periods, there is reason to suspect very great error, from the well known propensity of octogenarians, and the impatience of their relatives, to exaggerate their age, and to persist in the same story, until, by the decay of their faculties, they believe it themselves.

The *following facts are interesting :—

1. Of the 1002 nominees in the English Tontines of 1693, the last died in 1789.

2. Of the 2552 lives in the Exchequer annuities granted 1745, 1746, 1757, and a few in 1766, 1778, and 1779, 156 still survived at January 1826.

3. Of the 3557 nominees in the 3 Irish Tontines begun in 1773, 1775, and 1778, respectively, 1564 survived January 1826.

4. Of the 3518 nominees of contributors in the Great English Tontine in 1789, 2203 survived January 1826.

5. Of the 4831 nominated (by lot) by Government in the Tontine of 1789, 3008 survived the same date, 1826.

24.—Tontines are separated into simple and compound : the Simple are those in which the dividends of the shareholders, who have died before a period of participation, are distributed among the surviving members of their class ; Compound Tontines are those, where a portion, only, of the dividends belonging to the lapsed shares is carried to the survivors ; the remainder ceasing with the death. An example of this is afforded by the french Tontine of 1734, in which one-fourth of the periodic dividend on each share ceased with the death of its possessor. In subsequent Tontines, other varieties existed, where even half, and more, of the dividend lapsed with the life, a portion of that, which had accrued before a death, being presented to the families of the deceased as a slight alleviation of their pecuniary loss. In the

* [In each case the lives selected were principally children, and more especially girls, although some few contributors nominated lives even of advanced age, up to 50 and 60.]

mentioned tables of **Departmental* calculations have been given of the duration of life among the Tontine members of his time. They tend to show how little the desire to nominate select lives varied the speculations of that period.

25.—Since that epoch France has become noted for the extraordinary popularity of the *Temporary Tontines* usually designated "*Banques de Prévoyance*," which have been established in Paris and the leading provincial towns; the term of the Tontine being short and divided generally into cycles of 5, 10, 15, and 20 years. The members, on entry, pay for each share or policy a sum down, varying with their age, to be invested in public or real securities; and they speculate upon the chance of their receiving as one of the survivors, at the close of the cycle into which they have entered, a large return for the money subscribed, consisting not only of the accumulations from interest upon their own shares, but of a portion arising from the death of less fortunate members. Many men, especially of the military profession, who had, perhaps, no relations to whom they were particularly attached, on receiving prize money for their services, placed it in a temporary Tontine. They felt indifferent to the chance of loss, should they die before the end of its term, by the fortune of war, or by the ordinary law of mortality, and were willing to stake that risk against the more agreeable prospect of reaping a magnificent profit from the popular speculation. †From the returns of 18 of the leading societies we find that, even at the present time, they are considered so attractive, that, at the close of the year 1849 395,446 Policies were in force, involving shares subscribed to the enormous extent of £15,957,444 12s. (or 398,936,114 francs) which had been purchased at a cost, proportioned to the age, of £4,988,252 5s. 6d. (or 124,706,307 francs), each share or policy entitling the possessor, if he survive his

* *Essai sur les Probabilités de la durée de la vie humaine*, 1746.

† *Revue des Assurances*. J. Dubroca, 1850.

particular cycle, not only to receive its amount, but also to participate in a proportionate part of the other accumulations arising from death. The aggregate capital is stated to produce, annually, an average income of £230,591 4s. 10d. (or 5,764,781 francs), merely from being invested.

Of these 'Associations Tontinières,' one of the most flourishing appears to be "La Caisse Paternelle," which numbers 57,276 Policies or shares in existence, to the extent of £3,107,792 8s. (or 77,694,810 francs).

Another, 'La Prévoyance, créée par ordonnance royale du 28 Avril, 1820,' in its printed returns of 1848, stated that shares amounting to 70 millions of francs were subscribed for, at a cost of 31 millions of francs paid in. A cycle having been recently completed, M. Dubroca gives the amount of its engagements, on the 31st December, 1849, at 58 millions of francs, nearly.

The following are illustrations of the profit lately divided (ages not given) by "La Prévoyance":—

			Francs.			Francs.
A.B.	A	Governess...1831	paid in...	200	for... 5 yrs., & then received. }	1448
C.D.	"	Brewer.....1828	" ... 100	" ...10	" "	590
E.F.	"	Priest .....1837	" ... 6000	" ... 5	" "	9064
G.II.	"	Councillor } of State. }	1824	" ...10000	" ...20	" ...39213
I.J.	"	Captain of } Artillery }	1831	" ... 500	" ...15	" ... 2071

The professions suggest the probable ages of the parties, and shew that the investment has been highly lucrative, more especially if we remember (Art. 32., Part 1.) the time it usually takes for money even to double itself. Many causes have tended, in France, to make the result of their Temporary Tontines very profitable to the survivors; the principal were, undoubtedly, the increased rate of mortality in that country for 30, out of the last 60, years, through revolutions, war, and other contingencies, and the high rate of interest which, during that time, could be obtained for money.

26.—The older form of Tontines has lately been revived in

England with various modifications. New societies have sprung up, stimulated by the very great profits that have been reaped by surviving members of old associations, and principally designed by their promoters for the disposal of freehold or long leasehold property, for which a *single* purchaser, of sufficient means, could not be found. The object is, consequently, to procure the necessary capital for the purchase of the estate, by creating a large number of Shares, of small amount, among which the net rental may be periodically divided. The duration of each proprietor's interest in his share, or shares, is thus made to depend upon the existence of some life, nominated by himself, of an age to be selected within given limits.

27.—In some Tontines, the minimum age is 10 or 15; in others it ranges up to 50 or 60, and even 80; sometimes the mention of any limit is omitted, in which case discretion is left to the shareholders to nominate young lives, at such ages as appear to them, or which experience has shewn, to give the longest expectation of life. With the falling of the life of the nominee, the share becomes cancelled in the ordinary way, and the income of the Tontine is divided among the survivors; year by year the number becomes smaller, and the dividends greater; *until the last life, unless it has been otherwise provided, comes into the whole of the property. The application of the Perpetuity Tontine system to land, or, rather, of Land investments to Tontines, obviously requires great caution. A piece of land is bought at a cost absorbing the greater part of the fund, which is formed by the subscriptions of the members; and, if necessary, according as the situation is urban or rural, it is built over with houses, or converted into farms, and let upon lease; the rents received forming the income of the society. The chief point, therefore, in this, as in all land investments, is, whether the estate proposed

* [That constitutes the difference between a State, or Redemption, and a Private Tontine.]

is capable, from its situation or its nature, of being let at the required rent; as it occasionally has happened, that societies of this kind have been "got up" by the owners of land, for the express purpose of ridding themselves of unproductive property.

28.—The principle of a Tontine is, in its essence, a decided speculation, but of a kind that may be made most beneficial. There exists no moral objection to the union of individuals, who are willing to risk small sums in the hope of augmenting their fortunes, without the customary efforts of labour, intelligence, or skill, but by the lucky selection of healthy and lasting lives. In one case only, can such an association be open to censure, as involving a species of dangerous gambling, viz:—where the shareholders nominate other lives than their own. *When, however, they speculate wholly for the benefit of the life nominated, the application of the principle is excellent. It becomes, in reality, a game, in which the stakes are laid, as to which of the players is likely to live the longest. The person, who collects the money and undertakes to pay the dividends, being regarded in the light of the banker to the game, and as one who is the responsible agent for investing the funds confided to him. So that, while reaping a per centage for himself, he holds an account with the players, as to the profits of the speculation, and hands over to them, at the end of each year, or other fixed period, the proceeds of their capital, which may be considered as interest realized since the last day of settling. In the majority of games of chance, the main advantage is to the banker, the loss to the players, who, in the excitement of gambling, are exposed to lose, even, the very means of their existence. In a Tontine, where the shareholders nominate their own lives, or the nominees are the parties pecuniarily

* Hamilton, in his History of the Public Revenue, remarks that Tontines seem adapted to the passions of human nature, from the hope every man entertains of longevity, and the desire of ease and affluence in old age.

interested, the speculation affords to them an increasing income, and the money involved is continuously reproductive.

29.—The existing Tontine Companies present little variety in their object. We have said that they are mainly designed to purchase large freehold estates, which are considered peculiarly suited, by nature and position, for some important commercial enterprise; leasehold tenures being usually rejected, from their limited character. When a particular estate has been selected by the promoters, in the conviction that, by improvement thereon, it can be made productive of considerable profit, they proceed to form a Joint Stock Company, under the provisions of the Acts of Parliament relating to such associations (7 and 8 Vic. c. 110 and 111; 8 and 9 Vic. c. 116; 10 and 11 Vic. c. 107.), with a license to purchase or hold land, which is to be obtained from the Privy Council for Trade. The capital of the Company, for example, say £100,000, is divided into 1000 shares of £100 each, to be held upon lives, of ages within selected limits. The Shareholders may nominate different lives for each share, or exercise their own discretion in concentrating their stakes upon a single life. At the end of 3 or 5 years, and at fixed intervals afterwards (the Company being in full operation), the rents from the houses upon the estate, or the profits from the commercial enterprise, whatever it be, after payment of expenses, are divided.

30.—To persons who are desirous of speculating, with, perhaps, less apparent pecuniary advantage, though, in the *long run*, greater security, the best Tontines are those in which the capital is invested in the purchase of well-situated Agricultural Freeholds, or in Government Stock and other public securities, and not in associations created for effecting building operations, which are conceived under the idea of the growing importance of the locality contemplated for investment. To those, however, who prefer the greater attraction of larger annual returns, such as are offered by the latter speculation, we would recommend the introduction

into the Deed of Settlement of their company of a special clause to secure compensation to the holders of those shares, the life nominees of which may die about the time that the company has experienced a loss, through the falling off of its rents, or other source of income, which, in investments on such security, must, from time to time, be expected. The object of the clause would be to guarantee to the proprietor of a share, that has lapsed by death at such a period, a proportionate part of the profits that may subsequently be obtained through a prosperous reaction in the company. For example :— suppose that in a Tontine, of which the rent income is about £5000 a year, and the periods of division are quinquennial, there occur, for two or three years, a failure in its receipts, so that, instead of there being a sum of £25,000 upwards to divide among the survivors at the next division, there be only £10,000 or £15,000. Then, if the original intention were to confine the speculation to the chance of survivorship, and not to affect it by any fluctuation in the proceeds of the property, it is clear that the shareholders, whose life-nominees die anterior to a revival of property at a subsequent division, should receive some compensation for their loss. The mathematical principle of such a clause is interesting, and should be taken as the basis thereof.

31.—In most of the cases of the present application of the Tontine system in this country, it is customary to select a limit of minimum age for nominees, and then leave it to the option of the shareholder to nominate a life of equal or higher age, as he may think fit, when the limiting age is young. The establishment of any Tontine would be facilitated if a reduction in the cost of each share were made, in case of a life, several years older, being nominated; since it must be extremely difficult, in an extensive 'Tontine, for the members to find a sufficient number of select lives of the lowest specified age; and each would be unwilling to risk his

chance upon the expected longevity of an older life. A diminution might safely be permitted, in the sum paid for the purchase of a share, provided it be proportionate to the diminished expectation of life of the nominee, and calculated by a sound table of mortality, with a margin in favour of the general fund. The said share, nevertheless, to convey to the purchaser a right to equal privileges with any other share.

32.—The speculation becomes much more interesting when the periods of the divisions of profits are at wide intervals; the effect of mortality at the end of periods of 5 or 10 years becomes sensible, and the accumulated income to be divided increases the attraction of the investment.

Referring to the *table at the end of this work, we find that, supposing the age at entry to be 15, the lives to consist of 1000 males, and the periods of division of profits to be quinquennial, the survivors of each period receive a rapid increase in their income. Suppose, as in a preceding example, that the shares be £100, and the annual returns of profit arising from the £100,000 invested be £5000, which, re-invested during the quinquennial period, would, at 5 per cent., produce £27,628, there would remain, after setting aside, say, £2,628 for expenses, &c., £25,000 to be divided. Then, if deaths occur in a ratio such as that of the mortality table referred to, there would be, to partake of it, at the end of 5 years, or at age 20, 963 members; or the dividend would be


£25 18s. 10d., nearly.

At the end of 10 yrs., or at age 25	„	924 members
Dividend	£27 0s. 10d., nearly.	
„ 35 „ „ age 50	„	676 „
Dividend	£36 19s 6d., nearly.	
„ 45 „ „ age 60	„	544 „
Dividend	£46 0s. 0d. nearly.	
„ 55 „ „ age 70	„	342 „
Dividend	£73 2s. 0d. nearly.	

* English Life Table, 5th Report of the Registrar General.

And so on, up to age 90, when the number, still existing, would be about 14 or 15, and the dividend per share £1756 16s. 3d., or about $17\frac{1}{2}$ times the original sum paid. At 95 there would be, probably, but 2 alive to partake of the £25,000 dividend, and a few months longer would transfer the £100,000, or the property which represents it, to the last survivor, for his heirs for ever. (*See also Section 4, Appendix*).

33.—Moreover, when the intervals are distant, the application of Life Assurance may serve to protect the parties interested in those lives, that fail in the intervals between two successive divisions, from losing, altogether, their expected share of the profits. That is to say, it may, after a few years, suit their views to diminish the excitement of the speculation, by taking out a temporary policy on the life of the nominee, on the same principle which is so generally adopted by policy holders in the Equitable Life Office, who, at each approaching recurrence of the periods of the decennial divisions of profit in that society, effect temporary assurances on the lives involved, in order to guard, by a trifling outlay, against the total loss of the large Bonus which is usually declared. This expense, however, would, probably, not be entered into, until the Tontine had been some time in existence, and unless the lives selected had been originally young. We have met with recent prospectuses of Tontines on Building property, where it is proposed to arrange with a Life Office, that, out of the income of the company, from the very beginning (after a dividend at 5 per cent. has been set aside for the shareholders), premiums should be paid for assuring the return, on the death of each nominee, of the original sum itself, invested in the purchase of the share. This undertaking, if actually carried out, must, in effect, withdraw from surviving members the great profits, which are expected as likely to accrue from deaths. A simple calculation, founded on the tables of any Life Office, would shew that such a system of assurance would, as might naturally be anticipated, reduce the Tontine



(the very essence of which is, that it is a speculation on the longevity of lives), to a mere investment association, in which the capital of each member is only to be engaged to produce a moderate rate of interest, as long as he, or his nominee, is alive. Life Assurance can be properly and advantageously adopted, when the Tontine has been a long time in operation and the nominee has survived several years of the company's existence, or when the rate of profits upon each share has become so large as to make it worth a member's while to sacrifice a small portion to assure against the chance of total loss by death.* Such an assurance should, nevertheless, be left optional to the party concerned, and not be made a feature of attraction, put forth by the company itself.

34.—One of our motives for thus entering upon the question of Tontines, is to suggest, to the consideration of our readers, the excellent application that may be made of the principle to the furtherance of Home Colonization and Systematic Emigration, by creating a capital, of which free use can be made without its being exposed to be withdrawn or to be required for very many years; and we shall return to the subject in the 5th Chapter of this part of the Treatise

* [It has been suggested, that a plan of increasing Policies of Assurance or of returning a larger proportion of the cost of each share, might form part of the features of a Tontine company; the increase being regulated by the number of periods of division that the deceased nominee has survived. This, to our mind, would neutralize the benefits of a Tontine, both for the reason adduced in Art. 30, and from the possibility of fluctuations in the epochs of mortality of the nominees. The following remarks of Mr. Finlaison are judicious, and bear upon such application of Life Assurance:—"When the number of lives in a society, tontine or community, are not very considerable, aberrations will happen. From a series of sickly seasons, with, it may be, a prevailing malady affecting more severely some particular stage of existence than some other, the deaths may occasionally be in clusters, all signs of which would have disappeared or become submerged in an observation of greater numbers and over a greater length of time; *vice versa*, it may chance that for some years, in early life more especially, during a course of healthy seasons the mortality runs so low as to be quite incredible, as a measure of the rate happening to larger masses through a greater variety of years."]

CHAPTER III.

SECTION I.—BUILDING COMPANIES AND SUBURBAN VILLAGE ASSOCIATIONS; THEIR NATURE AND OBJECT.

II.—REMARKS ON THE RURAL DISTRICTS.

III.—THE NECESSITY FOR HOME COLONIZATION OR SYSTEMATIC EMIGRATION.

SECTION I.

ART. 35.—At the commencement of Benefit Building or Freehold Land Societies, such as we have described in preceding chapters, a notable difficulty has been found to exist, in the absence of sufficient capital, through the slow and gradual mode by which the funds are collected, and of proper legal authority, whereby the erection or purchase of houses and land may be effected, upon a wholesale principle, and a profit may at once be secured to individuals in their part of the same. The advantages of aggregate purchases, or of building operations upon a large scale, are, however, so important, that the promoters of many institutions, with such an object, have found it desirable to forego the privileges of the Act of Parliament relating to the Benefit Building Societies, and have sought a legal constitution under the provisions of the Acts for Joint Stock Companies, referred to in a preceding page. In the place, therefore, of the Investors' subscriptions of a provident association, they have adopted the plan of the Capital-Stock of a company, and have combined therewith, in respect to the reproductive use of the money, the facilities of Advance-repayments afforded by Building Societies.

36.—Building Companies and Suburban Village Association have thus been formed with a capital, that serves to purchase land wholesale, and to erect a large number of buildings upon it, which, when finished, are transferred to purchasing-tenant under security of a mortgage, for a specified term of years; the payments of the tenants, during that time, being monthly or quarterly, and calculated so as both to afford a liberal rate of interest on the capital invested, and to purchase the house from the company. Referring to the set of Rules given in Part 1, for the purpose of illustrating our meaning, instead of the plan adopted in clause 108, page 96, the proprietary capital is fixed at a nominal sum, from £100,000 to £250,000 divided into shares of £5 or £10 each, to be paid up in 2 or 3 instalments, within a short time; upon these shares, periodical dividends are declared at 4 or 5 per cent., or at such other rate as may be realized out of the profits upon the advance-repayments, which are received from the purchase of the houses built by the company, and are calculated in the same way as Table 2, Art. 110, in the Rules above referred to; with this difference, that, instead of the money being advanced in cash to the tenant to enable him to erect or purchase for himself, the whole transaction is conducted under the superintendence of the Directors of the company and the purchase-repayments are regulated by a table according to the wholesale cost, which is generally so moderate as to allow of a fair margin of profit in favour of the Stockholders, whose capital has thus been made use of. The administrative provisions of the Company's Deed of Settlement differ but little from the clauses in Benefit Building Society Rules, but the legal position of the proprietor is essentially different. Under the existing law of partnership, to which some modification is confidently anticipated ere long, the liability of a Shareholder in a Joint Stock Company is not subject to any limit, as regards the public with whom the company has trading operations, but only in respect to his co-

partners in the concern. Hence, building companies have advanced but slowly in public favour; although the actual amount of risk is very small, when the operations of the association are directed to the extension of rising towns, by building in the suburbs or other improving localities, or to the establishment of habitations upon new and desirable sites, to which the tastes of the affluent or the necessities of the industrious have directed public attention. For this latter case, Building Companies, under the name of Suburban Village Associations, have been mainly designed, and they have met with the sympathy and support of all who are interested in the welfare of the poorer inhabitants of our crowded cities.

37.—In this country there is an element which, independent of the attractiveness of a good investment, and despite apparent partnership liability, may be relied upon, in carrying out plans designed for the improvement of the condition of the industrious classes. This element is a feeling of benevolence, mingled with a sense of the duty, which devolves upon the possessors of larger property, to protect and succour those who are placed beneath them, perhaps, in position and fortune, but through whose agency a great portion of their own wealth is created. This duty is felt to be the more stringent, because it is almost impossible for the poor to do anything, themselves, towards bettering their condition in respect to their dwellings.

38.—Were this feeling wanting, it is considered that parishes and unions might do much towards improving the condition of mechanics and rural labourers, with their families, by taking the matter into their own hands, and by erecting comfortable dwellings, as Suburban Villages, to be let at a rent that would merely repay the cost; not, perhaps, indiscriminately to any one, but to those who, by their general good character, should seem most entitled to a preference. There is arising an opinion, that with such a system carried to some extent, there would be less occasion for Workhouses

upon their present scale, and the morals of the lower orders would be greatly improved. The difficulty in the way of improving the dwellings of the labouring classes, whether in town or in the country, lies in a small compass, as it is purely a financial one; and there is nothing to be done, but what every one must perceive to be necessary, and what any ordinary builder can execute.

39.—Of the necessity of measures for the accomplishment, in a systematic manner, of the object aimed at by associations of the nature of those referred to in this chapter, the public mind has been sufficiently convinced by the disclosures lately made concerning the condition of the metropolis. The recent metropolitan improvements, considered in conjunction with the data furnished by the weekly bills of mortality, demonstrate, to conviction, the very great extent, to which the debased condition of the poorer classes of the population arises from the insufficiency and wretchedness of their habitations. Much sympathy has been excited and has been called into active exertion by these disclosures, and not without good result. But, of all the pernicious influences, to which the poor of the metropolis and other large towns are exposed, there is not one which has so direct an effect in impeding the efforts of charity in their behalf, or in neutralizing the result which may, by constant exertion, have been effected by that charity, as their dense and promiscuous agglomeration in large numbers in filthy and insufficient dwellings. No can we reasonably hope that the strenuous endeavours of those benevolent persons, who seek to promote the education of the rising generations of the industrious classes, can be adequately recompensed, while the objects of their solicitude are, by the circumstances of their condition, compelled to live among scenes of disorder, along with crowds of adults congregated together in a manner which precludes any attention to decency or comfort, and coming into continuous contact and intercourse with the most lawless and depraved

individuals. No wonder that, under these circumstances, vice is rendered so familiar to the youthful mind, that it becomes almost incapable of recognizing its evil. The associations in question desire to lessen the mischief, and to benefit the community at large, by building villages at a moderate distance from the metropolis.

40.—Although the class, for whose immediate welfare they are mainly intended, can hardly be expected, at once, to accept the advantages held out to them ; yet the gradual removal of those whose circumstances permit, viz. clerks, artizans, and others of limited income, for whom the associations desire to erect dwellings in the first instance, will afford to others the opportunity of obtaining superior habitations on more favourable terms, and less exposed to the malignant influences peculiar to their former localities. It is hoped that the force of example, combined with educational and other remedial measures, will, ultimately, induce the poorer classes to avail themselves of the benefits held out by such Suburban Societies. In accordance with this plan, the formation of villages is suggested at distances of from four to eight miles from London or other important towns provided with Railways, and in the immediate vicinity of Stations. “ These villages
 “ to consist of houses built in pairs, averaging six cottages
 “ to an acre, and combining all the advantages which the application of practical science can confer, as to construction,
 “ ventilation, drainage, and architectural arrangement, and
 “ with a good garden to each.”

41.—In the last paragraph we have, to illustrate the principle, referred to a prospectus, in which it is stated, that to erect two such villages, with suitable public buildings, an estimated capital of £250,000 would be required ; and, in order to bring the shares within the means of those for whose benefit the association is principally formed, the amount is divided into 50,000 shares of £5 each ; upon which, after the deposit of 6*d.* and a call of 4*s.* 6*d.* per share have been paid,

the remaining £4 15s. may be made up by instalments, suited to the progress of the works, at the rate of not less than £1 per share per annum.

42.—Suburban Village Associations do not hold forth the prospect of a large return, in the shape of profit, to the shareholders, but rather invite support to undertakings having for their object the amelioration of the sanitary condition of persons of restricted income ; at the same time, it is felt that, in order to ensure a proper extension of the plan, a reasonable rate of interest should be secured to the members for their investments. It is proposed, therefore, that the rents should be sufficient, after providing for all disbursements, contingencies, &c., to return a dividend of about five per cent. per annum, on the capital of the association.

The provisions of these societies are chiefly adapted to the requirements of the industrious inhabitants of towns, who derive from their labour small incomes, upon which they may fairly reckon, and are thereby enabled to join in transactions, which require the continuation of periodical subscriptions for a certain number of years.

SECTION 2.

Remarks on the Rural Districts.

ART. 43.—With country dwellers, however, the case is somewhat different ; the distance at which they are separated from each other prevents them from joining, in great numbers, in mutual association ; and they have neither the experience nor the busy habits which belong to the inhabitants of towns. Besides this, the establishment of land investment societies .



in agricultural districts is much impeded by other causes. The growing tendency to accumulate wealth in the hands of a few persons is traceable in the division of landed property, all over the country. The many thousand small freeholds which might be found a century and a half ago, scattered over the length and breadth of our island, have been gradually collected into large estates, the property of a few wealthy individuals.

44.—A corresponding change has taken place in the character of the agricultural classes. The old Yeoman, with his few paternal acres of land, his high spirit and independence, has given place to a class of tenants sometimes farming on a greater scale, but holding, by leasehold tenure, the lands which were formerly divided into separate freeholds. The larger number of field labourers employed by them, and, in some cases, by the owners of the soil, have, in general, no real property, but dwell in small cottages, pay their rents in frequently recurring instalments, or are liable to be ejected upon very short notice.

45.—Many persons, who are not practically familiar with the rural districts, imagine that the once existing mutual footing between labourer and employer yet subsists. *Such now, is not the case, at least, in most parts of the kingdom. In Scotland, perhaps, the agricultural labourers are a less distinct and separated body than in England, as regards their employers. In this country, the great bulk of the farm labourers form a distinct class, inhabiting the outskirts of the small towns and villages, which they have almost entirely to themselves; and, as they have neither capital nor any resource beyond their daily labour (for which also there is no certainty of continued employment), they earn a most precarious existence. In some cases, the sites of the villages belong to a few proprietors, sometimes to only one, but it by no means follows

[* See the valuable reports, in 1849-50, of the Commissioners of the Times and Morning Chronicle on this subject.]

that they are employed, either on the farm of which a village site may form a part, or even on the property of which the farm may be but a portion. Their labour is at the command of any one who is disposed to hire it, so that, what with uncertainty of employment, and the fluctuation in the amount of their wages, they pass their lives in constant oscillations between their cottages and the workhouse, with no alternative beyond, but starvation or the grave. Such is the general system which prevails through England. With the causes which have concurred to produce this system, we have, at present, nothing to do. It appears, however, that they are still in action, and country residents may, even now, observe that the tendency of large estate-holders is to extend their boundaries, and absorb the small freeholds which may yet be left around them.

46.—The effect of this concentration of property may be regarded as, generally, unfavourable to the lower classes. It has the effect described by *Archbishop Whately:—“Where a large proportion of the wealth of a community consists of the enormous and overgrown fortunes of a few, that community has by no means such promising prospects in respect to the intellectual and moral advancement of the rest of the people, or even of the possessors of those fortunes, with one which enjoys a greater diffusion of wealth.”

The landlord, speculating upon the fluctuations in the value of landed property, is unwilling to grant long leases upon terms which, though they may appear equitable at the time, may, afterwards, give, what he considers, an undue advantage to the tenant, as the land improves or the value of its produce rises in the market. The farmer, on the other hand, is, naturally, unwilling to toil for the good of others, and he refrains from making those improvements in the land, of which, though it may ultimately increase its value, he himself may never reap the fruits; besides this, although a large quantity

* *Lectures on Political Economy*, No. 8.

of land is still waste and uncultivated, yet the trade of a farmer, like almost every other calling in this country, is considerably over-stocked; the number of farms required being greater than the number of farms to be had, and competition, with all its unfortunate results, ensues; the farmer agrees to pay an unreasonable rent, rather than be cast idle upon the world; to maintain his family and pay that rent he has recourse to a system of strict economy; and, in this system, the first and most obvious step is to diminish the wages of his farm labourers. Upon the latter class, the casualties incident on agricultural pursuits, fall with greatest severity; every unfavourable change in our uncertain climate; every fall in the value of the produce of the soil, arising either from a glut of the market or from legislative measures, compels the farmer to shorten the wages, or, more generally speaking, to increase the misery of his labourers.

47.—The example thus set by the lease-holding farmer, which is only justifiable on the ground of absolute necessity, is, too often, eagerly followed by the landed proprietors. The labouring classes are thus reduced to a condition of great poverty, many of them being dependent on private benevolence for their support during a great part of the year; on the other hand, it too frequently happens that farmers in the present day take more land than they have capital to manage. Hence, when a bad season arrives, they are driven to their wit's end to know what to do. Their labourers, at most times, are incompletely employed, and, when dismissed, are driven on the parish. This, in the shape of an increased Poor-rate, recoils on the farmers themselves.

v

SECTION 3.

The necessity for Home Colonization or Systematic Emigration.

ART. 48.—Of the necessity which now exists for an immediate, extensive, and practical scheme for the amelioration of the condition of the labouring portion of the population, agricultural and mechanic, there is no need of much demonstration. At no former period in the history of this kingdom has such extreme misery existed, as at present; for, although it be true that the general condition of the people has vastly improved during the last 200 years, yet it cannot be doubted but that there is, now, a class absolutely much more numerous than at any former period, which suffers to the extreme limit of physical endurance; the class composed of those who, in the excessive supply of labour, which, owing to the redundancy of population, exists in the present day, are unfortunate enough to be placed at the bottom of the scale. Besides this, the over-stocked state of the liberal professions; the severe competition among tradesmen; the precarious employment, scanty food, and low wages of the agricultural labourers in many parts of the kingdom; the deplorable physical condition and social abasement of immense numbers of the artizans who inhabit our larger towns; together with the fact that there exist multitudes, who habitually work at sedentary and unwholesome occupations for 13 or 14 hours a day, but whose toil is so ill requited, that they are never free from the care and hopeless anxiety which cannot but attend on a state of poverty, only one degree removed from the completest destitution; and who immediately sink, irretrievably, to the lowest condition, when sickness, which is constantly hovering over their debilitated frames, at length arrests the efforts of their feeble hands; all, categorically elicited to the minutest detail, by the enquiries which have been set on foot during the last 20 years, and fearfully confirmed by the facts which are continually brought to our notice, with horrible

vividness, in the mere perusal of the daily papers, must, collectively, be considered as the consequences of one leading cause: viz. the continual increase of the population, without a simultaneous increase of the means of employment; and, taken together, afford an argument (than which no stronger could be adduced in proof of any assertion), that, in reality, there does, now, exist an urgent necessity for taking immediate and systematic measures towards greater improvement of their condition.

49.—This can only be effected by laying open a wide field of employment, in order to lessen the competition of capital with capital, and labour with labour, which is the permanent cause of distress. The ancient saying still holds, that when a parent is unable to make suitable provision for his offspring, it is time that the needy children should quit the parental roof and seek elsewhere for their daily bread. It has been suggested, that the furtherance of this object might be assisted by systematically endeavouring to reclaim the *available* tracts of uncultivated land in the United Kingdom. *These, in Ireland, occupy an area of nearly four million acres, of which one million and a half are reclaimable for the spade and the plough (with promise of great fertility), and about two millions and a half more are suitable for pasture. But a more adequate remedy would be found in the successful colonization of the distant territories of the British Empire. These include vast tracts of land of the most exuberant fertility, only wanting capital and labour to cover them with abundant harvests, but, wanting these, are now covered with useless vegetation, and give shelter and sustenance to beasts. We may here be allowed to quote a striking remark of the distinguished economist, Mr. Mill—
 “The art of Colonization is but to carry the superfluity of the
 “one part of this Empire to repair the deficiency of the other;
 “to cultivate the desert by applying to it the means that lie

* [See note to page 167; only two-thirds of the uncultivated mountain and boglands are considered *available*.]

ON SOME EMANCIPATION AND SYSTEMATIC EMIGRATION.

"He is better off who will to sow the sough to the field,
"He will work to his work the hungry in his food." It may be
affirmed with confidence that emancipation in the present state
of the world is the very worst affair of business in which the ca-
pital and the real wealth of the country could possibly be engaged.

2d.—The following Chapter contains a description of a
mode of effectually accomplishing the reclamation of the
waste and half-cultivated lands in Ireland, by purchasing
these wastes, and working them with English capital; and,
while passing to a mode of independent yeomanry in that
country, to diminish the competition for farms, and give
necessary employment to agricultural labourers. The same
plan is also equally applicable to the systematic Colonization
of our foreign possessions, and thus affords a practical
method of improving the condition of the industrious classes;
while, at the same time, it offers a lucrative mode of invest-
ment to those who may be willing to advance the requisite
capital. The measure we have described can, in our opinion,
be particularly alleviated by a well-organised and vigorous
system of emigration and of colonization combined with it,
the great system of trade; unless, as has been said in
reference specially to Ireland,*—we wait for the operation of
nature and necessity to remove that, now, super-abundant
population, which presents an insuperable obstacle to ultimate
improvement. Even in a purely economical view of the
matter, let any one compute carefully the annual cost of
maintaining a given number of persons, to say nothing of
their productive increase, for whom no profitable employment
can be found: then let him estimate the outlay necessary,
more or less, to settle as colonists, the same number of per-
sons in such a way as to enable them to support themselves
in plenty, and let the annual permanent burden of the former
procedure be compared with the interest of the sum required
for the other:† conclusion must follow.

* See *Principles of Political Economy*, 3rd Ed. of *Lectures on Political Economy*.

CHAPTER IV.

FREEHOLD LIFE ASSURANCE AND INVESTMENT APPLIED TO SYSTEMATIC COLONIZATION.

"It is no longer a question whether emigration should be encouraged. Emigration is, now, indisputably shown to be the great outlet for these Islands. As surely as Niagara relieves the inland seas of America, emigration is the door of safety for our human redundancy. But woe to the state that watches unconcerned the spontaneous remedies and escapes of a miserable crowd. As it values its own safety, it must take the matter in hand, direct the method, and guide the issues of the mighty operation. Future ages may rue the present neglect."—TIMES.

ART. 51.—In this and the succeeding chapter there are three leading principles under review, in reference to the important question of systematic emigration and colonization. The first is the basis of the plan of Freehold Life Assurance which, at last, is attracting so much attention, and was advocated by its originator, Mr. William Bridges, as far back as 1842,* in a very able exposition of his views, now out of print, upon the subject of colonization. The second principle is involved in the well-known system supported by Mr. Wakefield, of fostering and raising the status of emigrants, by transferring colonial land to a superior class of persons, not gratis, as heretofore, but on payment of a moderate purchase-money, and in applying the proceeds to providing the colonies with healthy labourers, dispatched, to a

* Freehold Assurance ; or, the Extension of the principle of Life Assurance to Tenancy and Colonization.—By William Bridges. 1842.

“ idle at home; in one word, to convey the plough to the field, the workman to his work, the hungry to his food.” It may be affirmed, with this author, that Colonization, in the present state of the world, is the very best affair of business in which the capital of an old and wealthy country could possibly be engaged.

50.—The following Chapter contains a description of a plan for effectually accomplishing the reclamation of the waste and half-cultivated lands in Ireland, by purchasing those estates, and working them with English capital; and, while raising up a body of independent yeomanry in that country, to diminish the competition for farms, and give increased employment to agricultural labourers. The same plan is, also, equally applicable to the systematic Colonization of our foreign possessions, and thus affords a practical method of improving the condition of the industrious classes; while, at the same time, it offers a lucrative mode of investment to those, who may be willing to advance the requisite capital. The pressure we have described can, in our opinion, be continuously alleviated, by a well-organised and vigorous system of emigration and of colonization combined with it, the only certain system of relief; unless, as has been said in reference specially to Ireland,* “ we wait for the operation of famine and pestilence, to remove that, now, super-abundant population, which presents an insuperable obstacle to ultimate improvement. Even in a purely economical view of the matter, let any one compute carefully the annual cost of maintaining a given number of persons, to say nothing of their probable increase, for whom no profitable employment can be found; then let him estimate the outlay necessary, once for all, to settle, as colonists, the same number of persons, in such a way as to enable them to support themselves in plenty; and let the annual *permanent* burden of the former procedure be compared with the *interest* of the sum required for the other;” conviction must follow.

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* Freehold Assurance ; or, the Extension of the principle of Life Assurance to Tenancy and Colonization.—By William Bridges. 1842.

certain degree, at the national expense.* The third is as yet untried, and we accept the responsibility of the recommendation. It consists in the establishment of Benefit Emigration and Colonization Societies, which, by the instrumentality of the co-operative association of the industrious classes, can be made to supply that which is most essential, and yet wanting in the first two principles: viz., to create the necessary funds to enable emigrants, entirely through their own efforts, to become purchasers of land and other colonial requisites.

52.—The nature of a Freehold Life Assurance Company may be easily and concisely explained. Suitable tracts of country being purchased from the existing proprietors, would, unless already in the desired state, be drained, fenced, and otherwise adapted for immediately profitable cultivation, at the expense of the company, and, so improved, be divided into small allotments, furnished with the requisite buildings, &c. These allotments would then be disposed of, by conveying the fee-simple thereof to chosen persons (who could, at once, enter upon and profitably cultivate the same), subject to a terminable rent charge, a part of which would consist of the interest of the capital expended, and would be, in point of fact, a rent like that which, in the usual relation of landlord and tenant, is paid for the hire of land; while the remainder would consist of the premiums, which would be paid by the allottees, on the ordinary principles of Life Assurance, in order to secure, for each, the payment at his death of *a sum equal to the estimated value of his particular allotment*. On the death of one of these original Allottees, the sum assured would not be paid to his devisees or representatives, but, in lieu thereof, they would

* [The Emigration commission, appointed in 1840, has power to devote the proceeds of Land-Sales to emigration, in the ratio of free passages for five adults in respect to every £100 worth of land purchased; but the purchaser himself and family cannot receive a passage under this privilege. The Poor-law Board have also a restricted power to sanction allowances towards free passages out of parochial money.—(See 4 & 5, W. IV. c. 76; 11 & 12, V. c. 110; and also Land-Sales Act, 5 & 6 V., c. 38.)]

become the possessors of an unincumbered Freehold Estate; The payment of the annual rent charge to the company during the life of the first occupier would be secured by a mortgage on the property.

53.—This scheme is considered to be peculiarly fitted, not only for the improvement of our distant possessions, but also for Home Colonization, more particularly in the amelioration of the present condition of * Ireland, as in that country extensive tracts of land might be purchased at so low a rate (as has been determined by actual investigation), that, if they were adapted to the proposed purpose with proper skill and due economy, the rent charge, estimated as above, need not greatly exceed the sum which, under the present system of Landlord and Tenant, is frequently paid as rent alone, for even temporary occupation; while it would, at the same time, be sufficient to realize a large interest for the capital originally expended. † The plan, no doubt, offers a means of bringing about a complete change in the social condition of that portion of the kingdom, by creating independent yeomen, possessed of the strongest inducements to industry: viz., that the fruits of their exertion would be all their own; while a very high state of cultivation might be expected in the course of time, from the concentration of the care and diligence of each farmer on a limited acreage. With reference to the last observation, we will here insert some judicious remarks of an observant and experienced traveller, Mr. Laing, although they form rather a long digression.

54.—“ If we listen to the large farmer, the scientific agriculturist, or the political economist, good farming must perish with large farms; the very idea, that good farming can

* [“ Were the security of property and the empire of the law as well established in Ireland as in Britain, land would certainly sell higher in the former than in the latter. Most Irish estates are, comparatively, in a state of nature, and afford capacities for the profitable outlay of capital that are all but unknown in England.”—Mc Culloch's *British Empire*.]

† See also *Note to Art. 12 re Freehold Land Societies*.

exist, unless on large farms cultivated with great capital, they hold to be absurd. Draining, manuring, economical arrangements, clearing the land, regular rotations, valuable stock and implements, all belong, exclusively, to large farms, worked by capital and by hired labour. This reads very well ; but if we raise our eyes from their books to their fields, and coolly compare what we see in the best districts farmed in large farms, with what we see in the best districts farmed in small farms, we see (there is no blinking the fact) better crops on the grounds in Flanders, East Friesland, Holstein, in short, on the whole line of arable land, of equal quality, of the continent from the Sound to Calais, than we see on the line of British coast opposite to this line, and in the same latitudes, from the Frith of Forth all round to Dover. Minute labour on small portions of arable ground gives, evidently, in equal soils and climate, a superior productiveness, where these small portions belong in property (as in Flanders, Holland, Friesland, and Ditmarsch in Holstein), to the farmer. It is not pretended by our agricultural writers, that our large farmers, even in Berwickshire, Roxburghshire, or the Lothians, approach to the garden-like cultivation, attention to manures, drainage, and clean state of the land, or in productiveness from a small space of soil not originally rich, which distinguish the small farmers of Flanders, or their system. In the best farmed parishes of England or Scotland, more land is wasted in the corners and borders of the fields of large farms ; in the roads through them, unnecessarily wide, because they are bad, and bad because they are wide ; in neglected commons, waste spots, useless belts and clumps of sorry trees, and such unproductive areas, than would maintain the poor of the parish, if they were all laid together and cultivated. But large capital applied to farming is, of course, only applied to the very best of the soils of a country. It cannot touch the small unproductive spots,

which require more time and labour to fertilize them, than is consistent with a quick return of capital. But, although hired time and labour cannot be applied beneficially to such cultivation, the owner's own time and labour may. He is working for no higher returns, at first, from his land than a bare living. But, in the course of generations, fertility and value are produced; a better living, and even very improved processes of husbandry, are attained. Furrow draining, stall-feeding all the summer, liquid manures, are universal in the husbandry of the small farms of Flanders, Lombardy, and Switzerland. Our most improving districts, under large farms, are but beginning to adopt them. Dairy husbandry even, and the manufacture of the largest cheeses, by the co-operation of many small farmers; the mutual assurance of property against fire and hail-storms, by the co-operation of small farmers; the most scientific and expensive of all agricultural operations in modern times: the manufacture of beetroot sugar; the supply of the European markets with flax and hemp by the husbandry of small farmers; the abundance of legumes, fruits, poultry, in the usual diet of the lowest classes abroad, and the total want of such variety at the tables even of our middle classes, and this variety and abundance essentially connected with the husbandry of small farmers—all these are features in the occupation of a country by small proprietor farmers, which must make the enquirer pause before he admits the dogma of our land-doctors at home, that large farms, worked by hired labour and great capital, can alone bring out the greatest productiveness of the soil, and furnish the greatest supply of the necessaries and conveniences of life to the inhabitants of a country."

55.—We will not, at present, enlarge on the beneficial results, which must obviously ensue from the application, on a large scale, of the system we have described, if properly carried out. A few remarks and suggestions present them-

selves with reference to its practical working. In the first place, it appears that the system of pure Life Assurance for the whole term of life might, in some cases, be conveniently modified. The adoption of the principle of payments for a fixed term of years, independent of life contingency, might sometimes be preferable; as, for instance, in the case of a person whose life would not be accepted at the ordinary rates of life assurance, but who, from skill and knowledge of farming, might be so desirable as one of the allottees, that it would not be advisable to exclude him from participating in the benefits offered by the association. It may, likewise, be remarked that the attraction of Benefit Building Societies has been found to consist in the fact, that they hold out a prospect of gratifying the desire, which is so universal, to acquire, during life-time, possession of property, unincumbered by charges of any description.* These considerations induce us to suggest, that the tenants should be allowed by the company the option of 3 plans: viz.,—

1st. To pay an Annuity, including repayment of principal, with interest in advance, for the whole life; or—

2nd. To pay the same for any term of years, to be selected at will by them, independent of Life Contingency. The property, passing to their heirs in case of death, with the remainder of the encumbrance, for the unelapsed number of years; or—

3rd. To allow the payments to be made upon a principle combining Life Contingency and Terms Certain, so that, if the life assured live over the term of years, which he will be at liberty to select as most suited to his means and wishes, he may have the property free of all encumbrance; and, if he die beforehand, it may pass in a similar state to his heirs.

56.—These three main distinctive plans admit of a great variety of adaptation. One, however, will be specially advisable.

* [Refer to Chapter viii. in Part I., relative to Life Assurance applied to Benefit Building Societies.]

It is to make the payments as small as practicable for the first two or three years, so as to allow the farmer to get settled, and then that the rates should be increased. We would leave it at the option of each farmer to select his term and mode of payment, provided he offered satisfactory security.

57.—*Example 1*:—A life aged 30 might be assured for £2. 4s. 8d. per cent. on the half premium system, for the first two years; that is, during that time half the premiums might stand over on credit, as a trifling debt on the policy, to be paid off when convenient, and, if the first year's interest on the loan be permitted to stand over until the end of the same period, the farmer would have ample time to get his land in order. His payments to the company to liquidate a debt of £100, with interest at 6 per cent., within his lifetime, would be £2. 4s. 8d. at once and £8. 4s. 8d. afterwards, with this further advantage, that, on his death occurring, early or late, all claim of the company upon the property would cease.

Other varieties of whole Life Policies might be effected, on ascending or decreasing scales.

58.—*Example 2*:—

If the farmer, on account of his age, do not care to avail himself of Life Assurance, he can make his repayments by a table for a limited term of years, leaving his heirs to finish the same, should he die beforehand.

Thus, if the advance be made for 19 years, the rate of annual *repayment* per £100, principal and interest, at 6 per cent. would be £8. 19s. 3d. at the end of each year.

If the repayments do not begin until three years are expired, his repayments will be £10. 1s. 4d., for a term of 19 years, as the debt to be liquidated would be then £112. 6s. 2d, instead of £100, from the arrears of 2 years interest. Similarly for other periods and rates of interest.

59.—*Example 3*:—

If it be desired, he may combine the principles of Life Assurance and Terms Certain. Thus, at age 30, a healthy

life may effect an 'Endowment-Assurance' policy for £100, payable in full at death, or at 55, whichever happen first, in consideration of a yearly payment of 3*l.* 19*s.* 10*d.* To liquidate an advance of £100 his first payment would be 3*l.* 19*s.* 10*d.* and 9*l.* 19*s.* 10*d.* afterwards until the age of 55, if he should live thereto; all debt ceasing if he die previously.

60.—In like manner, the premiums may, also, be paid half-yearly or quarterly, at will.

61.—It ought to be remarked, however, that, as very many of the lives assured (on account of the necessity of centralization of the company's mortgagors or borrowers into as few localities as possible), would be co-existent under the influence of the same foreign climate, or of the effect of other contingencies, no precaution would avail to protect the Life department against the loss, which a calamity, such as a fatal epidemic, might occasion; and, consequently, for some of our colonies, the objects of the plan proposed, would possibly not be attainable at the ordinary average rates of premium.

62.—A few general objections have been offered by those, who have been unwilling to believe in the practicability of the scheme. Amongst others, it has been urged that the principle of Freehold Life Assurance creates an immoral tendency, by giving to the heirs of a farmer an interest in his death. But the same objection applies, and with equal truth, to general life assurance, to many cases of life annuities, and even to the law of hereditary succession, and is, in point of fact, founded on a gratuitous assumption not borne out by experience; as it is only in some instances of Burial Societies among the most ignorant and degraded peasantry, that pecuniary interest in the death of an individual has become a regular incentive to crime.

63.—It has also been said, that, when the Redemption annuity extends throughout a man's life, every involuntary omission of the payments, which must be expected under the nature of the engagement, will either forfeit the policy, or cause a heavy debt to be added, with accumulated interest, to his other

payments, thereby increasing his difficulties, and rendering the recurrence of omissions more and more probable.

This trifling obstacle can be surmounted by a properly adjusted table of fines for irregularity of payment, and by a provision for the gradual liquidation of any extra debt, caused through unintentional neglect.

64.—Again, some fear has been manifested lest an unsuitable quality of land would fall to the company in the locality of its operations. This contingency can only be averted by the careful discrimination of the parties employed in the wholesale purchase of land to be allotted. There are, undoubtedly, many acres of land in Ireland, in this country, or in the colonies, which could not be cultivated with advantage; but there are also many, which require but the plough to give proofs of their fertility. Before concluding a purchase, it is to be expected that the company would avail itself of the experienced opinion of practical farmers, and other persons of judgment, both in and out of the neighbourhood, as to its probable capabilities. There are, generally, certain leading points which would scarcely be overlooked: viz.,

1st. An enquiry into the nature of the soil, its chemical composition and capabilities for drainage.

2ndly. The various peculiarities of climate, by which the land would be influenced; whether the situation be too high, and thus unfavourably exposed to bleak winds or strong sea breezes.

3rdly. The facilities which the locality offers to the transfer of the produce of the soil to a good market.

65.—Leaving aside theoretical discussion, we have evidence of increased disposition on the part of the public to encourage, by the aid of these principles, systematic emigration and colonization, in the various associations which, under the names of emigration and colonization assurance companies, have lately been established, for the purpose of

carrying them into effect. They state that, formerly, colonial lands were given away to emigrants, who were left to their own scattered, irregular, and unsupported efforts ; no means being provided to advance their interests at home, or to supply labour to the settlement. This was Emigration without Colonization.

That, latterly, this evil has been partially remedied by the formation of companies in England, which, having obtained colonial land, retailed it to emigrants at various prices ; applying the proceeds, after deducting expenses and profits, to providing a limited quantity of labour, and effecting other important objects. The main value of this improvement "consisted in the agency of the companies in the mother country, promoting and guiding emigration, directing enterprise, opening trade, representing grievances, combining efforts, and removing obstacles and difficulties beyond individual power to overcome." The capital of emigrants was, however, the fund by which this was effected. It was Colonization by Emigrant Capital alone.

66.—The new companies contemplate not only emigration, but systematic colonization, by introducing a new element, viz. by bringing, not only the capital of the emigrant, but that of England, together, to bear upon the wilderness ; so as not to require the emigrant to pay for land entirely out of his capital, but out of the profits to be realised by the joint operation of his own labours and of the company's fostering exertions. They desire to effect Colonization by English and Emigrant capital united.

67.—The first inducement to emigrants is presented in the adapting for them wide tracts of land to productive agricultural enterprise, through arterial and thorough drainage ; by the erection of convenient farm-houses and cottages ; and by the laying out of settlements, divided into such allotments, as may be found expedient for the purpose of sale and disposal. When the land has been so prepared, it would be let

out, with other requisites, to the emigrating colonist who has but small means, that he may, by the payment of a rent charge, during a specified term of years, at the end of the period, become absolute possessor of the land for ever. This rent charge being calculated on the freehold assurance principle of affording to the shareholders of the company a fair rate of interest for the use of their money, and of re-placing the capital expended.

68.—The companies to which we allude are not all confined, in their operations, to one locality; for it is generally acknowledged, that the principles both of freehold life assurance and freehold investment may be advantageously adapted to the facilitating of an extended scheme of colonization of the vast tracts of country which, in almost every part of the globe, form appendages to the British empire. The unprecedented extent to which emigration takes place in the present day is well known; the number of persons* annually leaving

*[The following figures are extracted from the 10th Report of the Emigration Commissioners :—

“EMIGRATION FROM THE UNITED KINGDOM DURING THE 25 YEARS,
FROM 1825 TO 1849 INCLUSIVE.

Years.	United States.	British Colonies.	Total.	Years.	United States.	British Colonies.	Total.
1825	5,551	9,340	14,891	1838	14,332	18,890	33,222
1826	7,063	13,837	20,900	1839	33,536	28,671	62,207
1827	14,526	13,477	28,003	1840	40,642	50,101	90,743
1828	12,817	13,275	26,092	1841	45,017	73,575	118,592
1829	15,678	15,520	31,198	1842	63,852	64,492	128,344
1830	24,887	32,020	56,907	1843	28,335	28,877	57,212
1831	23,418	59,742	83,160	1844	43,660	27,026	70,686
1832	32,872	70,268	103,140	1845	58,538	34,963	93,501
1833	29,109	33,418	62,527	1846	82,239	47,612	129,851
1834	33,074	43,148	76,222	1847	142,154	116,116	258,270
1835	26,720	17,758	44,478	1848	188,233	59,856	248,089
1836	37,774	37,643	75,417	1849	219,450	80,048	299,498
1837	36,770	35,264	72,034				
Total...2,285,184, viz. United States, 1,260,247, Brit. Col ^s , 1,024,937.							

Average Annual Emigration from the United Kingdom for the } 91,407"
last twenty-five years }

the shores of this kingdom being now of very great magnitude. It is, however, an old remark, that emigration, to any extent, in so far as it is casual and unsystematic, does not form one step towards colonization, properly so called; nor, indeed, we may add, can it be of much advantage to this country, as it cannot permanently diminish that disastrous competition both in labour, and capital, which, as before stated, is the origin of distress. On the one hand, the

A comparison with the rate of increase of the population is interesting: by the Census of 1821 the population of the United Kingdom was... 21,193,458

1831 24,306,719

1841 26,916,991

The apparent average annual increment of population in the 10 years from 1821 to 1831 is 1.40 per cent.; that in the next period only 1.02 per cent; we observe, therefore, the important effect, which Emigration has produced on these results.

2. From the Colonies of Great Britain, alone, irrespective of the United States, whither a large number proceed, it is stated that a sum of upwards of a million and a quarter sterling is annually sent through Liverpool houses from persons who have emigrated, to enable poor relatives at home to pay their passage to the same quarter of the globe.

3. The following memoranda, relative to those localities to which Emigrants mainly resort, are valuable:—

"Country.		Acres.	Remarks.
Australia, Western .	21,000,000		Amount purchased in fee and in occupation, about 1,500,000 acres. The climate is temperate and has been generally found to be healthy to Europeans. There are no droughts like other parts of Australia.
New South Wales ...	about 9,500,000 of grazing land is in occupation.		About 200,000 acres have been cultivated. Victoria, lately made a separate colony, contains about 63 or 64 millions of acres, and presents many attractive features for an Emigrant. The soil is about the best in the whole Island.
Van Diemen's Land.	Contains 23,437 square miles.		Has attained a higher perfection, in an agricultural point of view, than any other of the Colonies.
South Australia	192,000,000 acres.		The only results that have occurred there of any note, have been the discovery of some valuable mines. This division, for the most part, has been unexplored. About 600,000 acres have been the amount of land sold.

capitalist (speaking generally), will not divert his attention to colonial investment, while the supply of labour which would alone make such investment profitable, is insufficient or fluctuating. On the other, the poor labourer, who is unable to find continuous employment in this country, and who is, therefore, willing to emigrate, and carry the energies, which are superfluous at home, to any part of the world, where he

<i>" Country.</i>	<i>Acres.</i>	<i>Remarks.</i>
<i>"</i>	<i>"</i>	The demand for labourers in Australia is yet even great; also for mechanics, such as blacksmiths, carpenters, and bricklayers; but for artizans and mechanics of a high order there is scarcely any demand.
New Zealand Islands	60,000,000	Perhaps in the whole world there is not a superior climate. Soil admirably adapted for Colonization.
Cape of Good Hope, and Natal	15,000,000 in Natal alone.	Climate good. Presents much attraction for small capitalists. The cultivation of coffee, cotton, sugar and even indigo and rice have been attended with good results.
Canada, Upper	64,000,000	There are about 4,000,000 acres available. Soil fertile. Climate: cold of winter not so severe as in Lower Canada. In addition to indigo, cotton, and tobacco, its mulberry trees are cultivated.
<i>"</i> Lower	137,000,000	Nearly 10,000,000 acres available for settlement. Winter severe. Climate generally favourable, but there are many unhealthy districts.
New Brunswick.....	18,900,000	12,300,000 vacant, 6,600,000 granted, only 50,000 cleared.
Newfoundland	2,300,000	Soil productive, if properly cultivated; but emigrants, and the colonists themselves, pay more attention to the fisheries."

The whole of the British provinces in North America are calculated as embracing 4,000,000 square miles.

4. The return also gives an account of the persons and vessels employed by the Emigration Commissioners, and of the receipts and disbursements for the last three years. The funds at the disposal of the commissioners have been £96,254, voted by Parliament; £517,011, contributed by the colonies; £27,050, deposits made with the commissioners for the purchase of land; £76,580, contributed on behalf of emigrants; and £8,298, miscellaneous, including profits by investment—total £725,194. The disbursements balanced against these amount to £677,459.]

may turn them to account, is compelled, by the circumstance of his poverty, to remain where he is and suffer a life of dependence and distress. In this view, it is plain that the majority of emigrants must consist of persons whose means, though too scanty to shelter them from the pressure of competition at home, are yet sufficient to pay the cost of their passage and to maintain them for a time on their arrival at their destination; a preliminary outlay which absorbs a large proportion of their means, so that they have little left for prospective improvement. Emigration, therefore, did not promise to be of much utility in relieving the distress of the labouring classes at home, or in furthering the colonization of our foreign possessions, until Mr. Wakefield proposed a system of colonisation, the main principles of which, viz., the sale of colonial lands at a uniform price, and the application of the proceeds of such sales to the carrying out of young and healthy labourers of both sexes, deserve general approbation. The scheme was, indeed, evidently calculated to obviate the defects which have been indicated as attaching to unsystematic emigration, as its application would obviously tend to relieve the pressure in the labour market, and, at the same time, offer to capitalists a good prospect of advantageous investment in colonial land, giving assurance of the certainty of obtaining the supply of labour requisite to make it productive and profitable. Its practical application, however, is open to several objections, which have given rise to various modifications that have been under discussion. Thus, on considering the circumstances of a colony to be constituted according to Mr. Wakefield's theory, it is evident that the necessity for a plentiful supply of labour would be urgent at the beginning of its existence, when, nevertheless, the land sold would probably be of so small extent, that the sums arising from such sales would be inadequate to furnish that supply. Hence, it has become a question of importance, whether it might not be expedient for the infant colony to raise a fund for the

importation of labour, by means of a loan, negotiated on the security of future land sales; it being supposed that, with a guarantee from the mother country, such a loan could be obtained at a moderate rate of interest. The expediency of a proceeding, under the above circumstances, has been indicated with great clearness by the late Mr. C. Buller, whose opinion must be always entitled to respect:—

“No doubt, great caution would be requisite in thus forestalling the resources of a colony; but, on the other hand, a debt contracted for such a purpose is not an unproductive waste of capital, such as the national debt, nor is it to be likened to the debts of individuals, contracted for the enjoyment of the moment. It is rather to be compared to those debts which wise landlords often deliberately contract, for the purpose of giving additional value to their estates, or to the loans by which half the enterprises of trade are undertaken, and which are to be regarded as resources of future wealth, not embarrassment.”

We shall not occupy our space by making any reflections on these judicious remarks, but shall proceed to indicate, briefly, the advantages which the principle of Freehold Life Assurance offers in respect to Colonization.

69.—It is plain that Mr. Wakefield's system, in its original shape, only offers the means of advantageous emigration to labourers, and holds out, thereby, an inducement to capitalists to direct their attention to the colonies. But it is not of equal benefit to that numerous class, so eligible as colonial emigrants, who are possessed of a small amount of capital, and whose intelligence and activity fit them for a situation above that of the hired labourer. The necessary outlay in the purchase of land for improvements thereon, and of the implements of farming, is, moreover, not unfrequently, so large, compared with the means at their disposal, as, for some time, to cripple their exertions.

70.—The true Art of colonization consists, therefore, not in

the creation of over-grown farms, in the hands of a few capitalists, with hired labourers, whose condition is not much better than it would have been in England; but in the affording of facilities to the emigration and subsequent well-doing of the medium class of persons, who are, even at home, by dint of industry and prudence, accompanied with the possession of energy and fore-thought, and no inconsiderable share of information, able to live on and effect small savings; and who, naturally enough, would be glad to emigrate to a new country, where their lot would be somewhat less arduous. The object of a parental government should be, not to get rid of the ignorant and poor who, for that very reason, are not fit to become the basis of a new colony, of which they would be in preponderance of number, but to supply the younger country with individuals possessing those qualities of intelligence and moral character, which are even more required from them abroad than at home. Let this be done, and, the pressure from above of over-population being removed, even the worst class of those who remain, would speedily rise to the level, and improve both in their nature and worldly condition.

71.—For this purpose, no legislative facilities have yet ever been accorded, or even contemplated; and it is left to the union of private enterprise and capital, to supply those means for systematic emigration and colonization, which are daily more and more felt to be required. This is the object of a Freehold Life Assurance Company and a system of Benefit Emigration Societies, of which details are given further on.

By the aid of a company at home, the emigrant of the superior class, we have alluded to, could obtain a loan from the time of his emigration, of sufficient additional capital, to give scope to his exertions and energy; and he would, probably, in a few years, be able to repay the money with liberal interest, suitable to the risk incurred by the lenders and the advantage derived by himself. The money would (as in the former instances of the application of Freehold Assurance), be

lent upon the security of the land, with the deposit of a policy of insurance on the life of the emigrant; or it might be found expedient, in some instances, to take personal security. We shall conclude this chapter by quoting some* remarks upon the subject, which are well worthy of a reprint, and refer to the succeeding chapter for the developement of a principle of Benefit Emigration Association, which may serve as the basis of an extensive application of the systems advocated by Mr. Bridges and Mr. Wakefield.

72.—“Say that the emigrant commences in his adopted land the cultivation of his little farm; at the end of the first year he reaps his crop and sells the produce, which is sufficient, we will imagine, for the support of himself and family, and also affords the means of raising another crop. As, however, if a demand were made upon him for interest on the advance, he would, in all likelihood, be unable to answer it; no re-payment should be expected from him in that shape till the lapse of at least two years from the date of his entry.

“Let a case be supposed that may occur, viz., that in the course of a few years the emigrant dies, leaving a widow and one or two young children; It cannot be expected, in their circumstances, that the survivors will be able to meet a demand for the principal or interest of the debt; but by the operation of life assurance on a large number of transactions, the parties advancing the money would lose nothing; while the widow could retain her farm, the price, which was contracted for its purchase, having been paid during lifetime. It matters not at what age a particular emigrant may die, as such a sum would be paid by each as would, one with another, make up the sum advanced with interest.

“The advantages of such a system to the emigrant hardly require to be pointed out; from a situation of penury and dependence in this country, he is removed to one of comfort

* Bridges on Freehold Assurance.

and respectability in the colonies. While the rent-charge is unredeemed, he is in the same situation with a farmer in this country, having also the great additional advantage, that he cannot be turned out of his farm so long as he pays that rent, and that at whatever time he may die, he transmits to his heirs a valuable inheritance, free from all future pecuniary burden ; he may also redeem his land during his lifetime, by paying up the sum due ; and, considering the rapid accumulation of wealth in colonial countries in the hands of the frugal and industrious, there is no delusion in supposing that in the course of a few years the emigrant may raise himself to the position of a free owner of an unburdened estate, under his own cultivation. The happy prospects thus opened up to men struggling in this country with undue competition, and unable, with all the aids of mechanical skill and industrious perseverance, to earn a just reward for their exertions—‘ a fair day’s wages for a fair day’s work ’—it is unnecessary to enlarge upon.

“ On the other hand, the same system, with nothing more than the preliminary advance of capital, might be carried on to the same extent every year ; for it is obvious, that, so soon as the third year of the emigrant’s settlement had commenced, the annual returns would immediately show, either that the system was likely to do well or to prove a failure. If the rents were punctually paid on the average, capitalists would have no hesitation in advancing money on such security, to be applied in the same way. It is in the outset of such a scheme that all the risk lies. When once fairly organized, it acquires a self-supporting power, which insures success. It is obvious that the base upon which it rests, landed security, is the most solid foundation of credit, when the land is cultivated and productive ; and that it must become so in a few years, under the vigorous exertions of men working for themselves, for their wives and families, who have so noble a reward for their labours always before them, cannot be disputed.

73.—“ It may be said that the scheme will possibly fail, because the emigrants, secure in the possession of their farms and houses, will refuse to pay the annual demands when due, trusting to their numbers and the weakness of government in a distant colony ;” that, even though the government have the power, it would be unwise to exercise it ; from the general disorder into which the colony would be thrown by so many forcible ejections. We must confess that we see no sufficient grounds for entertaining such fears. If we take the instance of Ireland, a country more unfavourable to the expectation of tenants performing their engagements to landlords, on many accounts, such as difference of religion, mutual exasperation, and too high rents, we* find that the payments, so far from being refused, are made as punctually as in England. If proper care be exercised in ascertaining the habits and character of the emigrants, and in sending out only such as are recommended for sobriety and industry, there can be no great fear as to success ; if the executive were unable to enforce the law in the colonies, as well as at home, there would be an end to all government. This has not been the case hitherto, in any British colony, if we except the, now, United States ; but that arose from the attempt to impose an unjust and arbitrary taxation upon the colonies, and is altogether a dissimilar case. With regard to the danger of disturbing the country by an extensive series of ejectments, there is no reason to believe that any such resistance would be offered to a government both able and resolved to maintain the law against every offender. In the very unlikely event, therefore, of any such combination, a few examples would demonstrate to the refractory class the hopelessness of any such contest.

74.—“ It is also to be considered that, at the utmost, the

* [This was written by Mr. Bridges in 1842, previous to those critical changes and misfortunes, which have since so pressed upon the ability of the renting farmers, that they have found it difficult to redeem obligations contracted under more favourable conditions.]

danger, if danger there be, would occur only with the first emigration, and during the first few years; and that such a class, scattered in the midst of a numerous and already settled colony, would be in no situation to combine their efforts for any purpose of opposition. In any such attempt, the moral force would be on the side of the government, and a power that enabled the United States to emancipate themselves from an unjust and arbitrary dominion, would certainly, when linked with the strength of government, be sufficient to maintain order, and enforce obedience to law. Once these few years of trial were passed, the danger would be for ever annihilated; and the system, incorporated with the institutions and habits of the colonists, would acquire the same degree of firm consistence as the relations of landlord and tenant in this country."

CHAPTER V.

ON THE FORMATION OF BENEFIT EMIGRATION AND COLONIZATION SOCIETIES.

ART. 75.—We will now consider the elements of the third principle alluded to at the beginning of the preceding Chapter.

It appears to us, that *Societies under the above title, might be formed for the purpose of carrying out, with the view to systematic colonization, the principle of Freehold Life Assurance, in union with that of the ordinary Benefit Building Societies. Of the advantages to be derived from a system of Freehold Assurance, enough has already been said. That it has not yet come into any very extensive operation can be attributed only to the difficulty which exists in creating the large capital requisite for the purpose. The capital of an ordinary joint stock company cannot, at all times, be collected with facility, as it has to be furnished by a comparatively small number of persons in instalments, within one or two years; and it is sunk for a length of time, generally equal to the duration of the company. Where the investment is permanent, or similar to that of railways or canals, the shareholder cannot recover his money, except by throwing his shares into the market, and exposing himself to sell them at a heavy loss. If the capital be only engaged for a time, the operations of the society would either be much limited or soon cease altogether. This would be more particularly the case with a Freehold Assurance Joint Stock Company for colonization, as the withdrawal of its capital would, at once, put a stop to any further progress. To obviate this difficulty,

* [The recent Friendly Societies Act of August, 1850, 13 & 14 V. c. 115, contains an express provision, inserted at the eleventh hour, for the encouragement of Benefit Emigration Societies.]

we propose, that, in co-operation with such a central company to be possessed, intentionally, of but a small capital itself, there should be adopted the system of the Investing shareholders of a Benefit Building Society; or, in other words, that the requisite funds should be created by small instalments, payable by way of periodic subscriptions to Branch Benefit Emigration and Colonization Societies, to be established in all parts of the kingdom.

76.—The money subscribed by the investing shareholders could be applied, through the agency of the central company, to the wholesale purchase of land in a small number of selected localities in the colonies, to be mortgaged in allotments to such of the *branch members as desired to become colonizing tenants. The available means of each Benefit Society would be continually increasing, by the taking up of new shares by fresh investors, and by the repayments of colonists, which, together, would come in so rapidly as to regenerate continuously the lending fund. Many persons would join such a society for a limited period, as 10 or 12 years, either to obtain possession of small allotments of colonial land, previously improved by sufficient preparation

* [That admirable lady, Mrs. Chisholm, has tested, by experience, the safety of according advances even to emigrants of the poorest class. In a notice relative to the benevolent Loan Colonization Society, which is under her auspices, we find it recorded "that loans, made on a very extensive scale, in aid of passage money, on the joint security of successive bodies of emigrants, have been, with inconsiderable exceptions, repaid with honourable punctuality." The principle of that society is to help the poor man by enabling him to help himself. By careful and excellent arrangements its ships afford a passage to an adult for only £12; to a child below 15 for £6. Of this he is required to pay down one-half; the society then lends him the remainder, and has agents in Australia who secure repayment of this loan within 2 years after his arrival. Thus the poor man's own frugality and self-denial are called into play, and the society makes them available for his emigration. "Upwards of 200 poor people, who have been paying their little weekly instalments for nearly 2 years, have now subscribed, in this way, £1,500, which is more than their quota. The loans, when repaid, go to equip another ship, and then another; so that £10, in the course of time, may send out many emigrants, saving them from probable starvation at home, and, at the same time, bringing into action their own virtues of prudence and industry."]

thereon, in the nature of drainage, roads, &c., (which could be effected by the central company at a moderate cost in the gross, and yet, when subdivided, yielding to it a handsome profit,) or to receive at the end of that time, counted from the month of their entry, the amount of the subscribed shares in full, equivalent to the accumulation of their subscriptions, at a reasonable rate of compound interest, not lower than that of the public funds.

77.—The Central Company would thus act as the agent of numerous Benefit Societies. It would, in fact, be the super-association of separate groups of associating individuals, and would be able to perform, or cause to be effected, all that would be out of the power of one branch society. The company would be essential to them, and they would give vitality to it. Hence, undiminished power would be secured for carrying out, for ever, the object for which the colonizing company was originally formed; even though the membership in the local benefit society of each investing shareholder, on the one hand, and of a borrowing tenant, on the other, would be limited. The *surplus* profits of the central association would be periodically divided among the shareholders thereof, a portion being reserved to be carried to the credit of the shares of the branch societies, as an encouragement to persevere, and it might be made payable to the subscribers at the expiration of their membership. The profits to be divided would be materially increased by the power, which a *permanent* institution has of benefitting by that augmentation, in the value of the *reserved* lots of land, which would be consequent on the general improvements introduced on the property. Practically, the position of the tenants would be the same in either case, but by the aid of Branch Benefit Emigration Societies, that main difficulty would thus be removed, of obtaining the desired capital, which, in all enterprizes, has been found to consist in the natural unwillingness on the part of the public to sink, as proprietors of a Joint Stock Company, large sums at once, for an indefinite

number of years. By the plan proposed, the necessary funds would speedily be obtained, through the small contributions of the multitude of provident persons who exist in this country.

78.—We do not apprehend that there would be any obstacle to obtaining investors for the Benefit Emigration Societies, since the agency and protection of the Central Company would ensure to them as good, if not better, security, as in the ordinary mutual associations which swarm in such numbers, and of which the *pecuniary resources have attained to such large amounts. The security offered, being *freehold* land, would increase every day in value from the improvements which the tenant farmer would introduce upon it ; and, from his repayments being made in gradual instalments, the risk of each branch association would be gradually on the decrease. Also, from its being a subscription society, the managers, at all times, would have the power of extending, curtailng, or putting an end to its operations.

79.—For unity of design and simplicity of working, the freehold mortgagors should have their lands, as much as possible, situate in the vicinity of each other, so that the collection of rents may be facilitated, and the expense of the same kept within a small limit. It is evident that such a combination would give rise to many settlements. Half-a-dozen emigrants from each of 100 associations would at once constitute an important nucleus of 600 individuals co-operating together. The nature of such Benefit Emigration Societies is such as to

* [In recent statistical papers it is stated that there are 10,433 enrolled Friendly Societies, numbering 1,600,000 members, who subscribe an annual revenue of £2,800,000, and have accumulated a capital fund of £6,400,000. There are also a vast number of unenrolled societies. Of the Manchester Unity there are also 4,000 societies, with 264,000 members, who subscribe £400,000 a year. In addition, there are the unenrolled Foresters, Druids, Rechabites, Old Friends, and others. The total is taken at 33,223 Societies, with 3,052,000 members, who subscribe £4,980,000 a year, and have a capital fund of £11,360,000. The whole adult male population of Great Britain and Ireland was, at the last census, 6,300,000 ; therefore nearly half the adult male population, without distinction of rich and poor, are actually members of these societies.]

ensure their legal existence by the power reserved in the clauses of the new Friendly Societies Act of 1850, and if Life Assurance contingencies were also undertaken, that department would be singularly benefited by the other privileges appertaining to that Act. The operations of the central company and the branch benefit societies should be kept perfectly distinct, both as regards the deed of the one and the registered rules of the others. The only connection between the two consisting in the protection, influence, and assistance which the centre would afford to the branches; in the watchful attention to their rights, both at home and abroad; in the securing for them all the advantages that would accrue from the purchase and sale of land, with other requisites, at wholesale prices; and in facilitating, by the power which an important company alone can possess, the progress of the emigrant from his native country to the spot of his selection, without the regrets and discomfort that have, too often, been, hitherto, experienced by those who have endeavoured, single handed, to better their fortunes in another land.

80.—Moreover, the agreement of a number of benefit emigration societies, to make use of the agency of one central company for the furtherance of their objects, would justify the expense, on the part of the latter institution, of appointing *Labour Referees* in the leading towns of the colonies, whose duty it would be to keep up constant communications with the head quarters in England, upon the state of the labour market in each seat of colonization, in order to procure, not only information of the probable chances of those emigrants who do not purchase land, obtaining employment, but even to secure it for them on their arrival; and, in fact, to provide the benefit societies in the United Kingdom, through the instrumentality of their centre, with periodic authentic details, upon every colonial subject that is likely to interest the members.

81.—Colonists of European extraction would probably associate themselves for the purpose of lending aid to their fellow countrymen, not to meet their pecuniary wants, but to furnish them with counsel and guidance, and, by information transmitted from time to time, to assist in preparing the emigrant with a knowledge of his prospects and difficulties on arriving at the colony of his selection.

82.—Of the constitution of the Company itself, it is not necessary for us to speak. The numbers of them, that have been lately formed, and the activity with which they are promoted, manifest sufficiently that, to the grand cause of systematic emigration, neither the support of the wealthy, nor the ability of men of business, is wanting. If they have not yet proved successful, it can be attributed only to a lack, on the part of the managers, of that special acquaintance with the habits and tone of mind of the industrious classes, which alone could enable them to secure their confidence. Such deficiency will, however, soon be remedied.

83.—The rules of all the Branch Societies might be similar in their leading details, which may be shortly resumed thus:—They should be formed on a principle analogous to that of a Benefit Building Society; the only real difference being in the purposes to which the funds of the society are to be applied; instead of advancing the money towards the purchase of houses or land in England, the object would be to gratify the desire of emigration. Intending emigrants would join a Benefit Society as investors, and perform the conditions attached to that position; after they have acquired sufficient standing by rotation or by ballot they would become eligible to be sent out as colonists; that is to say, land and other requisites would be supplied to them at a price, either to be paid for at once or by gradual instalments.

84.—The following extracts from a set of rules that we have prepared, as suitable for the object under consideration, will serve to illustrate the principle;—viz. :—



“ BENEFIT EMIGRATION AND COLONIZATION SOCIETY.

£50 Shares. Weekly payments, per share. Entrance Fee
2s. 6d. per £50 Share. Half-shares of £25 may also be taken.

I. *Name and Object of the Society.*

THAT this society shall be called the _____
Benefit Emigration and Colonization Society. Its object is to raise a fund to enable its members to emigrate, and, if they desire it, to receive an advance in full, or in part, of a share or shares, for the purpose of purchasing land and other requisites in any part of the Colonies dependent on Great Britain (or of the United States of America), on a system of purchase, as is hereinafter laid down; also to enable provident persons, who may have no immediate desire of emigrating, to invest their savings, at interest, in subscriptions upon shares to be received in full, out of the funds of the society when realized.

II. *Time and Place of Meeting.*—See Rule 2, Page 95.

III. *Power of Investment.*

That the Directors of this Benefit Emigration and Colonization Society shall have power to invest the whole or part of the subscriptions collected, from time to time, from the members, either in public securities or to deposit the same on the security of debentures bearing interest, not lower than _____ per cent, to be given by the _____ Emigration Company of London. The said debentures to be undertakings on the part of the said _____ Emigration Company, that it shall be liable for all monies so invested, until the same be either repaid, with the above rate of interest, or be accounted for, pursuant to agreement, in land and other colonial requisites, provided for such members of this Benefit Society, as may become emigrants, on such terms as the boards of directors of the _____ Emigration Company of London, and of this Benefit Emigration Society, may severally and jointly agree.

IV. *Share Subscriptions.*

That the shares shall be of the ultimate value of £50 each, to be paid to each member, at his option, in money, or in general requisites for emigration, in allotments of land, &c. &c.

quired for immediate use, be at once invested in government or other good securities, so that they may be always realizing, at least, a moderate rate of interest.

87.—In the above it is seen, that the investors who become emigrants will either complete at once the purchase of the land,* at wholesale price, through the central company, with their own money, when they have saved enough for the purpose; or the benefit society will grant them an advance to complete the purchase of the land and colonial requisites, provided the emigrant can himself pay down a portion (say one third), of the total cost thereof. The remainder being secured by a bond for a short period of years, or, perhaps, in select instances, for life, with the aid of a †policy of assurance.

* [The following is a summary of the modes of sale and prices in the principal land-selling colonies on the present system of land-sales and emigration.

COLONY.	Mode of Sale.	Price per Acre.
North American Colonies—		
Canada (West) ..	Fixed Price	8s. currency.
Canada (East) ...	Ditto	6s. & 4s. ditto, according to situation.
Nova Scotia	Ditto	1s. 9d. sterling.
New Brunswick ..	Auction	3s. currency upset price.
Prince Edward Is.	Ditto	5s. or upwards, according to situation.
Australian Colonies—		
Sydney	<div style="display: flex; align-items: center;"> <div style="font-size: 3em; margin-right: 10px;">{</div> <div> <p>By Auction.</p> <p>Country Lands not sold at the public sales may afterwards be bought at the upset price as a fixed price.</p> </div> </div>	Lowest upset price, £1 sterling.
Port Phillip		
Western Australia.		
South Australia ..		
New Zealand		
Falklands	Auction, ditto, ditto.	Lowest upset price, 8s. sterling.
Bahamas	Auction, ditto, ditto.	Ditto 6s.
Other West India Colonies. }	Auction	Ditto £1.
Cape of Good Hope	Ditto	Ditto 2s.
Natal	Ditto	Ditto 4s.
Ceylon	Ditto	Ditto £1.
Hong Kong	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">{</div> <div> <p>Do. only leases granted</p> </div> </div>	Rent to be ascertained by auction.

The system of sale, whether that adopted by the Government of selling waste lands at an upset price, or that of the New Zealand and other Companies, of selling the land, including prospective institutions, at a uniform and greatly enhanced figure, is obviously susceptible of immense improvement.]

† [The allusion in Article 41 to the possible aberrations in the law of mortality, upon which, as a basis, the assurance of colonists would be graduated

88.—The debt would be cleared off by periodic instalments, calculated to bring in an advantageous interest to the company. It is clear, that if a benefit building society can realize a handsome accumulation on its funds, by enabling some of its members to purchase property, there is no reason why land should not be bought abroad by emigrants. Through the credit afforded to an emigrant member being, in general, not more than two-thirds of the marketable value of the property, although with the money which he has already paid in as an investor it would be sufficient for his purpose, the benefit society, at once, will secure a salvage; inasmuch, as if the colonist should, at any time, even after the first year, neglect his repayments, the margin of the value of the property will prevent any loss. The society would also serve as a kind of Savings' bank for provident people and intending emigrants; whilst the endowment and tontine classes would prove a great convenience to parents and relations, who may desire, at some future day, to send out a son or brother, and are willing to begin subscriptions on his account, at an early age, on the scales of those classes.

89.—For greater security to the branch society, we recommend that one or two of the directors, or some efficient person on their behalf, should (*ex officio*), be entitled to be present, and to vote at the general meetings of the central company.

90.—Any hesitation, relative to the security of their subscriptions, that might exist in the minds of those members of

by the emigration company, brings us to the question of how far a properly adjusted system of extra premiums might provide against such contingencies as those referred to, or against the increase of mortality which might be consequent upon a change of climate, or upon the absence of that sound medical advice and other resources for ill health and accidents which are so accessible in Europe. Our own impression is, that the change of occupation and scene, and the feelings of content, which prosperity in the new country would bring, are likely to counterbalance the effect of all other contingencies. Hence, the application of the principle of extra premiums, to be strictly equitable, should be effected on the mutual system of assurance; so that, in the event of this latter view proving correct, the colonists may have returned to them, by way of bonus in cash or colonial requisites, that portion of the extra rate which was charged in excess. A *mutual* system of extra premiums would be all the more advisable, in the case of an extensive amount of colonial business, as the present rates charged by most of the European offices are entirely empirical, and have no real relation to any law of colonial mortality.]

the benefit emigration societies, who do not contemplate emigrating, would at once be removed if the central colonization or emigration company were to undertake the granting of guarantee assurance policies, against the risk of loss upon advances to colonists. For a very small premium upon each transaction, paid by the benefit society to the company, and previously charged to the colonist, the latter institution might safely undertake to guarantee, collaterally with the mortgage upon the property, the benefit society from loss, in case of a colonist becoming, intentionally or involuntarily, a defaulter. The losses, that occur in extensive loan transactions, are within an average limit, which can be determined with sufficient approximation; and a scale of premiums for loan contingencies may safely be adopted; reference being made to the contingency theorem, in Section 4 of the Appendix.

91.—*Such a system of Loan-repayment guarantee would fall within the range of most legitimate business for which a company might even specially be formed, and the rates of premiums would be trifling. The guarantee, being protected by the collateral mortgage upon the colonist's land and property, would be in this advantageous position, that every succeeding year would see the intrinsic value of the mortgaged security increasing from the improvements effected by the colonist upon the land, and from the influx of emigrants into the neighbourhood; whilst the out-standing amount of the debt, yet to be repaid, would be regularly diminishing.

* [The Loan Guarantee System, above suggested, is widely different, in its operation, from the recent plan denominated *Rent Guarantee*, which is intended to assure landlords against defaulting tenants. For it is plain, that in the rent guarantee, the society has no tangible security upon which to recover its payments to a landlord in case of a tenant taking his departure from a house without settling his rent; hence the premiums must be heavy. If, however, the rent assuring society undertake to make proper enquiries into the responsibility of the tenants, relatively to whom policies of guarantee are to be granted; and, if the rates be sufficiently high, such a company might do a safe and profitable business, and be of great public advantage.]



APPENDIX.

THE following pages contain the elementary propositions of Compound Interest, which relate more particularly to the system of Benefit Building, and other Investment, Societies, together with* several theorems, which have been specially deduced as bearing upon the subject. *In Section 4 will be found articles referring to financial clauses in the Rules or Deeds of Industrial Associations, and suggestions for the application of a Deposit System of Subscriptions, and of Life Assurance, to the extension of their operations.*

SECTION I.

ON THE ACCUMULATION OF A SINGLE SUM AT COMPOUND INTEREST.

ART. 1.—To find the amount S to which a sum P will accumulate in n years at compound *yearly* interest i per pound.

Since i is the interest on £1 for one year, or

$P \cdot i$ „ „ $£P$ for the same time.

∴ The amount of P with interest in one year is $P \cdot (1 + i)$.

Again the amount of P with interest in *two* years will, of course, be equal to its amount, at the end of *one* year, re-invested for a second year; or, to the amount of $P (1 + i)$ with interest in one year; that is, it will be equal to

$$\begin{aligned} & P \cdot (1 + i) + i \cdot \overline{P \cdot (1 + i)} \\ & = P \cdot (1 + i)^2 \end{aligned}$$

Similarly the amount of P with interest in three years is

$$= P \cdot (1 + i)^3$$

and so on for n years, where n is any *integer*,

$$\therefore S = P \cdot (1 + i)^n \dots\dots\dots (1)$$

In the above the time is expressed in years, but, from the nature of the reasoning, equation (1) will represent the amount

* [The theorems and articles marked thus † have a special relation to each other.]

of P at the end of an *integral* number of any intervals of time at the end of each of which interest is due after the rate of i pound.

It is, however, not applicable when n is a fractional number of the form $n = n_1 + \frac{a}{b}$, where n_1 is an integer and $\frac{a}{b}$ a fraction of a year, as the interest was supposed only due at the *end* of successive equal intervals of time, and, theoretically speaking, allowance of interest can be made for the broken portion; consequently, this hypothesis must always be remembered, if results be deduced from equation (1) relative to n , n must always prove to be a whole number (see Art. 12). In commercial questions, nevertheless, it is usual in such cases to calculate by equation (1) the amount due at the expiration of the last period, and to add to it simple interest for the fractional remainder of the time; so that

The amount of P in $\left(n_1 + \frac{a}{b}\right)$ years

= amount of P in n_1 years + simple interest on the amount for the portion $\frac{a}{b}$ of a year.

$$= P \cdot (1 + i)^{n_1} + \frac{a i}{b} \times P (1 + i)^{n_1}$$

$$= P \cdot (1 + i)^{n_1} \cdot \left(1 + \frac{a i}{b}\right) \dots \dots \dots (2).$$

2.—If the interest be due, in equal instalments $\frac{i}{m}$, at the end of each interval of time equal to the m th part of a year, the amount at the end of $m \cdot n$ intervals will be

$$S = P \cdot \left(1 + \frac{i}{m}\right)^{m \cdot n} \dots \dots \dots (3).$$

This result can be adapted to the case of interest being paid, due, half-yearly, quarterly, or monthly, by making $m = 2, 4$, or respectively.

—If the interest be supposed due momentarily, or at the end of each moment of time, in equal portions $\frac{i}{m}$, m being indefinitely large, then the result in equation (3) assumes a peculiar

For, expanding by the Binomial Theorem,

$$\begin{aligned}
 &= P \left\{ 1 + \frac{m \cdot n}{1} \cdot \frac{i}{m} + \frac{m \cdot n \cdot (m \cdot n - 1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \dots \&c. \right\} \\
 &= P \left\{ 1 + \frac{n \cdot i}{1} + \frac{n \cdot i \cdot \left(n \cdot i - \frac{i}{m} \right)}{1 \cdot 2} + \dots \right\} \\
 &= P \left\{ 1 + \frac{n \cdot i}{1} + \frac{(n \cdot i)^2}{1 \cdot 2} + \dots \right\}, \text{ since the terms containing } \frac{i}{m}, \frac{i^2}{m^2}, \text{ vanish when } m \text{ is indefinitely large.}
 \end{aligned}$$

$$\therefore S = P e^{ni} \dots \dots \dots (4).$$

ng the base of the Napierian or Hyperbolic logarithms, and 71828 nearly. (See any Treatise on Algebra.)

this equation we will return further on.

—Since $(1+i)^n$ can be put under the form $(1+i)^{n_1} (1+i)^{n_2}$ where $n_1 + n_2 = n$, we have *Theorem 1*:—That the amount of £1 at the end of n years by the accumulation of Compound Interest is equal to the products of its amounts at the end of n_1 and n_2 years respectively.

is property serves to make Table 3 give results, which are not limited within its limits.

EXAMPLE.

Let $n = 30$

the last number in the table is 25, let $n_1 = 25$, then $n_2 = 5$

the amount at the end of n years = £3.3863 \times £1.2762
at 5 per cent. = £4.3216.

Similarly, if $n = n_1 + n_2 + \dots + n_r$

$$(1+i)^n = (1+i)^{n_1} (1+i)^{n_2} \dots (1+i)^{n_r}$$

5.—From the preceding expressions it is seen that :

When interest is payable more frequently than once a year, there is a difference between the nominal annual rate of interest, and the true rate or actual annual interest realised.

For if i = the *nominal* yearly rate of interest per pound, and it be payable in m periodic equal portions $\frac{i}{m}$ in the course of a year, then supposing each instalment to be invested and to bear interest after the same nominal rate,

The *true* rate = the amount of £1 at the end of one year — £1.

$$= \left(1 + \frac{i}{m}\right)^m - 1 \dots\dots\dots (5).$$

If the interest be realised momentarily, then

$$\text{The true rate of interest becomes} = e^i - 1 \dots (6).$$

Hence a table may be formed showing the *true* rate per pound for various values of m .

If $m = 2$, the true rate for interest paid *half-yearly*

$$= \left(1 + \frac{i}{2}\right)^2 - 1 = i + \frac{i^2}{4}$$

$m = 4$, the true rate for interest paid *quarterly*,

$$= \left(1 + \frac{i}{4}\right)^4 - 1 = i + \frac{3}{8} i^2 + \frac{i^3}{16} \text{ nearly.}$$

$m = 12$, the true rate for interest paid *monthly*,

$$= \left(1 + \frac{i}{12}\right)^{12} - 1 = i + \frac{11}{24} i^2 + \frac{55}{432} \cdot i^3 \text{ nearly.}$$

$m = 52$, the true rate for interest paid *weekly*,

$$= \left(1 + \frac{i}{52}\right)^{52} - 1 = i + \frac{51}{104} \cdot i^2 + \frac{425}{2704} i^3 \text{ nearly.}$$

$m = \infty$, the true rate for *momentaneous* interest,

$$= e^i - 1 = i + \frac{i^2}{2} + \frac{i^3}{6} \text{ nearly.}$$

The two last results shew that the weekly and momentaneous rates of interest differ but little.

Table 4 has been formed by giving, in the above, to i different values for successive rates of interest, and it is accurate to three places of decimals.

6.—In equation (6) let $k = e^i - 1$.

Taking Hyperbolic logarithms,

$$i = \text{Log}_e (1 + k) \dots\dots\dots (7).$$

and this equation gives the nominal annual rate of interest i , realised momentarily, which corresponds to a *yearly* rate of interest k . Example: Let $k = \frac{5}{100}$

$$\therefore i = \text{Log}_e (1.05) = .04879$$

or £4.879 per cent. per annum momentaneous interest is equivalent to 5 per cent. per annum paid yearly. (See Table 5.)

7.—The general result in equation (1) can be put under the form

$$S = P \left(1 + \frac{(m.i)}{m} \right)^{m \cdot \frac{n}{m}}$$

Hence, *Theorem 2*:—*The amount at the end of n years, arising from the accumulation of interest yearly at the nominal rate of i per pound, is equal to the amount at the end of $\left(\frac{n}{m}\right)$ years, arising from the accumulation of interest m times a year at the nominal rate $(m.i)$ per pound:*

Or, in other words, †*Theorem 3*:—

The amount of a given sum, at the end of any number of periods of time, does not depend on the *length* of time in each period, but only on the *number* of them, and the quantity of interest due or payable at the end of each.

Example: Let $m = 2$.

$$\therefore P(1+i)^n = P\left(1 + \frac{(2i)}{2}\right)^2 \left(\frac{n}{2}\right)$$

or the amount of P in n years at i per pound *nominal* rate of interest payable once a year, is equal to the amount obtained at the end of $\frac{n}{2}$ years at $2i$ per pound rate of interest payable half-yearly.

Referring to Table 6, if $n = 50$, and $i = .04$ payable *yearly*, the amount of £1 in 50 years is 7.10668, which is the amount that would be realised in 25 years at 8 per cent. rate of interest payable *half-yearly*.

8.—If the *amount* A of a sum P at the end of n years be given by the tables at *yearly* interest, the amount A_1 can be deduced when interest is payable m times a year.

$$\begin{aligned} \text{For } A_1 &= P \left\{ 1 + \frac{i}{m} \right\}^{m \cdot n} = P(1+i)^n \left\{ \frac{\left(1 + \frac{i}{m}\right)^m}{1+i} \right\}^n \\ &= A \left\{ \frac{1 + m \cdot \frac{i}{m} + \frac{m(m-1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \&c.}{1+i} \right\}^n \\ &= A \left\{ \frac{1 + i + \frac{1 \cdot \left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 + \&c.}{1+i} \right\}^n \\ &= A \left\{ 1 + \frac{\left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 + \&c. \right\}^n \quad \text{nearly, and} \end{aligned}$$

neglecting the higher powers of i , which, as i is a decimal fraction of the order $\frac{1}{10^2}$, may be done when n is not very large, we have

$$A_1 = A \left\{ 1 + \frac{n \left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 \right\} \text{ nearly } \dots \dots \dots (1)-$$

9.—REMARK. The preceding equations contain all the formulæ necessary for the determination of any question connected with the accumulation of a *single* sum from compound interest. Several results can be deduced from them, which are worthy of notice.

It is seen that the hypothesis of momentaneous interest considered in equation 4 introduces the base of the Napierian or Hyperbolic logarithms, which possesses many important properties. Although that hypothesis is not generally used, yet it gives rise to various theorems, which can be adapted with sufficient exactness to the actual conditions of practice.

10.—Equation (4) gives $S = Pe^{ni}$, \therefore taking logarithms and denoting as before by Log_e the logarithm to the base e , we have

$$n \cdot i = \text{Log}_e\left(\frac{S}{P}\right) \dots \dots \dots (1).$$

= a constant:

or, supposing interest realised momentaneously, † *Theorem 4* arises:—*The product of the nominal yearly rate by the number of years, in which a sum P will amount to S, is constant, or the same whatever be the rate of interest: in other words, If P amount to S in N_1 years at i_1 per pound interest, then P would amount to S in $\frac{N_1 \cdot i_1}{i_2}$ years at i_2 rate of interest, or in $q \cdot N$ years at $\frac{i}{q}$ rate of interest.*

Example: By Table 6, £1 will amount to £7·38906 in 50 years at 4 per cent. momentaneous rate of interest. Hence, £1 ought, by this theorem, to amount to the same sum in $\frac{50 \times \cdot 04}{\cdot 08}$ years, or 25 years, at 8 per cent. momentaneous rate; which is also shewn by Table 6 to be the case.

11.—Let $S = f \cdot P$ in equation (1) $\therefore n_f \cdot i = \text{Log}_e f$

$$\therefore n_f = \frac{\text{Log}_e f}{i} \dots\dots\dots (2).$$

or, †Theorem 5:—*The number of years, in which, by the accumulation of momentaneous interest, a sum will become f -fold its original value, is equal to the $\text{Log}_e f$ divided by the nominal yearly rate per pound.*

$$\begin{aligned} \text{If } f = 2, \quad n_2 &= \frac{\text{Log}_e 2}{i} \\ &= \frac{.693147}{i} \dots\dots\dots (3). \end{aligned}$$

See the extract from Tables of Hyperbolic Logarithms contained in Table 12.

$$\begin{aligned} \text{If } f = 3, \quad n_3 &= \frac{\text{Log}_e 3}{i} \\ &= \frac{1.098612}{i} \dots\dots\dots (4). \end{aligned}$$

And so on for other values of f .

If for i we put $\frac{I}{100}$, I being the interest per cent., we have, from eqⁿ 3. *The number of years in which money will become doubled at I per cent. rate of interest realised momentarily is equal to 69.3147, divided by the rate of interest I .*

from eqⁿ 4. *The number of years in which money will become trebled is equal to 109.8612, divided by the rate of interest.*

12.—Respecting the Time of doubling at yearly interest.

If in Equation (1), Art. 1, or $S = P(1 + i)^n \dots\dots\dots (1)$ we suppose $S = 2P$, then $2 = (1 + i)^n \dots\dots\dots (2)$ which shews that n cannot be an integer, as $1 + i$ is a fraction.

But, as we have stated before, Art. 1, equation (1) can only be applied when n is an integer, hence it will not serve to determine the time of doubling when interest is paid *yearly*; nor can any equation do so, as, theoretically speaking, there can be no time of doubling for interest expressed by a commensurable fraction, and paid at the *end* of finite intervals.

Most writers have overlooked this consideration, and have erroneously given the values of n deduced from $n = \frac{\text{Log}_e 2}{\text{Log}_e (1+i)}$ for various values of i , as being the corresponding times of doubling at yearly interest (see Table 7). This amounts to supposing the money to accumulate *continuously* by a compound momentaneous interest $\text{Log}_e (1+i)$ throughout the whole time, in which on such an hypothesis it would double, instead of increasing as it does per saltum at the *end* of each year; or that the expressions $(1+i)^n = 2$ and $e^{n \text{Log}_e (1+i)} = 2$, which represent different hypotheses, are interchangeable.

The results thus obtained are of no mathematical value, although they differ but little from those that might be deduced from the *commercial* view of the question, see Equation (2), Art. 1, which supposes a proportionate amount of the *yearly* rate of interest to be paid, when there is a fractional number of days over.

13.—When interest is payable m times a year, Equation (3)

Art. 2 gives $S = P \left(1 + \frac{i}{m}\right)^{m \cdot n}$, where $m \cdot n$ is an integer.

$$\therefore \text{Log}_e \frac{S}{P} = m \cdot n \cdot \text{Log}_e \left(1 + \frac{i}{m}\right)$$

Let $S = f \cdot P$

then we may still assume the equation to hold approximately, whether $m \cdot n$ remain an integer or not, provided the intervals of conversion of interest be frequent.

$$\therefore m \cdot n_f = \frac{\text{Log}_e f}{\text{Log}_e \left(1 + \frac{i}{m}\right)} \dots \dots \dots (1).$$

$$= \cdot \text{Log}_e f \cdot \left\{ \frac{1}{\left(\frac{i}{m}\right)} + \frac{1}{2} - \frac{i}{12m} + \frac{i^2}{24m^2} - \&c. \right\}$$

And when f is not very large we have with sufficient approximation, †*Theorem 6*:—The number of finite intervals of time (each equal to the m^{th} part of a year), at the end of which money will accumulate to f -fold its original value, is

$$= \frac{\text{Log}_e f}{\left(\frac{i}{m}\right)} + \frac{\text{Log}_e f}{2}$$

$$= \frac{\text{Log}_e f}{\text{rate of interest per pound in each interval}} + \frac{\text{Log}_e f}{2} \text{ nearly..(2)}$$

since i is a decimal of the 2d order, and the higher powers of $\frac{i}{m}$ may be neglected.

* [The reciprocal of $\text{Log}_e (1+x)$ can in general be expanded in a series by the following method:—

$$\text{Let } \frac{x}{\text{Log}_e (1+x)} = a_0 + a_1 x + a_2 x^2 + \dots + a_r x^r + \&c.$$

$$\therefore x = \{ a_0 + a_1 x + a_2 x^2 + \dots \} \text{Log}_e (1+x)$$

$$= \left\{ a_0 + a_1 \cdot x + a_2 x^2 + \dots \right\} \left\{ x - \frac{x^2}{2} + \frac{x^3}{3} - \&c. \right\}$$

$$= a_0 x + a_1 \left| \begin{array}{c} x^2 + a_2 \\ -\frac{a_0}{2} \end{array} \right| x^3 + \dots + a_r \left| \begin{array}{c} x^3 + \dots + a_r \\ -\frac{a_0}{2} \\ +\frac{a_0}{3} \end{array} \right| x^{r+1} + \&c.$$

$$+ \dots + \frac{(-1)^r a_0}{r+1}$$

$$\text{Whence } a_0 = 1, a_1 = \frac{1}{2}, a_2 = \frac{1}{4} - \frac{1}{3}$$

$$= -\frac{1}{12}$$

$$a_3 = \frac{1}{24}, a_4 = -\frac{19}{720} \text{ and generally } a_r \text{ is given by the equation}$$

$$a_r - \frac{a_{r-1}}{2} + \frac{a_{r-2}}{3} - \dots + \frac{(-1)^r}{r+1} = 0 \dots (1)$$

$$\therefore \frac{x}{\text{Log}_e (1+x)} = 1 + \frac{x}{2} - \frac{x^2}{12} + \frac{x^3}{24} - \frac{19x^4}{720} + \&c.$$

14.—Let $f = 2$ then $\text{Log}_e 2 = .693147$

∴ The number of inter-

vals of time (equal to

m^{th} part of a year) $= \frac{.693147}{\left(\frac{i}{m}\right)} + .3465$

at the end of which

money will double

$$= 69.3147 + .3465 \text{ nearly. } \dots (3)$$

rate of interest per cent. in each interval.

15.—The results in Table 7, and Equation 3, shew that, generally, as regards the *integral* part of the time of doubling, we may assume for the sake of memory, †*Theorem 7*, that the

$$\text{Time of doubling} = \frac{70}{\text{rate of interest per cent.}} \text{ nearly,}$$

70 being the whole number next above 69.3147.

Or, “*The number of years in which money will double itself at compound interest is, in round numbers, equal to that whole number, which is nearest to the quotient obtained on dividing 70 by the rate of interest per cent.*”

When i is greater than .10, a higher dividend than 70 must be taken. In the generality of commercial operations, however, interest does not exceed 10 per cent., and this approximate rule will suffice for all practical purposes.

$$\text{Whence } \frac{1}{\text{Log}_e (1+x)} = \frac{1}{x} + \frac{1}{2} - \frac{x}{12} + \frac{x^2}{24} - \frac{19x^3}{720} + \&c. \dots (2).$$

When x is a fraction, as in the case of $x = i$ rate of interest per pound, then the series converges rapidly.

Also if for x we put $\frac{1}{y}$

$$\frac{1}{\text{Log}_e \left(1 + \frac{1}{y}\right)} = y + \frac{1}{2} - \frac{1}{12y} + \frac{1}{24y^2} - \frac{19}{720y^3} + \&c. \dots (3).$$

this form we shall make use of afterwards.

It will be noticed, by such of our readers as may be familiar with the higher branches of analysis, that the coefficient a_r , as determined from equation (1), is equal to the value of the definite integral

$$\int_0^1 (-1)^{r-1} \frac{s(1-s)(2-s)\dots(r-1-s)}{1 \cdot 2 \cdot 3 \dots r} ds$$

where s is integrated between the limits $s = 0$ and $s = 1$.]

16.—In simple interest there is a corresponding property. If N = number of years in which a sum P will double itself at simple interest I per cent.

$$P + N \cdot \frac{I \cdot P}{100} = 2P$$

$$\therefore N \cdot I = 100$$

$$\therefore N = \frac{100}{I}.$$

17.—*On the successive Stages of Accumulation of Capital.*

In Art. 13 we have deduced eqⁿ (2) a simple expression for the value of n_f , or the aggregate number of years that are required to make a single capital become f -fold its original magnitude; and Art. 15 affords an easy rule for memory when $f = 2$; we will now proceed to deduce an approximate relation between the successive quantities $a_1, a_2, \dots, a_{f-1}, a_f$, or between the additional numbers of years, or multiples of equal intervals of time, which are required to make a single capital P pass through the successive stages of accumulation, by compound interest, from 1-fold to 2-fold, from 2 to 3-fold, from f -fold to $(f + 1)$ -fold.

Thus, representing generally by $\phi_i^{a_r}$ the process of accumulation, at interest (yearly, m^{thly}, or momentaneous), by which the capital P passes from r -fold to $(r + 1)$ -fold, we have

$$2P = P \cdot \phi_i^{a_1} \quad \therefore a_1 \cdot \text{Log}_e \phi_i = \text{Log}_e 2$$

$$3P = 2P \cdot \phi_i^{a_2} \quad \therefore a_2 \cdot \text{Log}_e \phi_i = \text{Log}_e \frac{3}{2}$$

$$\vdots \quad \quad \quad \vdots \quad \quad \quad \vdots$$

$$(f + 1)P = f \cdot P \cdot \phi_i^{a_f} \quad \therefore a_f \cdot \text{Log}_e \phi_i = \text{Log}_e \left(1 + \frac{1}{f}\right)$$

or the quantities a_1, a_2, \dots are to each other in the ratios of the logarithms $\text{Log}_e \frac{2}{1}, \text{Log}_e \frac{3}{2}, \dots, \text{Log}_e \left(1 + \frac{1}{f}\right)$ respectively.

Hence the *Rates of Velocity* of arithmetical augmentation of capital are in the *inverse* ratios of those logarithms; or

†*Theorem 8*:—If the specific velocity of *doubling* be represented by unity, the relative velocities of attaining successive units of capital would be represented by

$$1, \frac{\text{Log}_e 2}{\text{Log}_e \frac{2}{3}}, \frac{\text{Log}_e 2}{\text{Log}_e \frac{4}{3}}, \dots \dots \dots \frac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)},$$

or by the logarithms of the number 2 taken to the successive bases $\frac{3}{2} \cdot \frac{4}{3}, \dots \dots \dots \left(1 + \frac{1}{f}\right)$, or,* very nearly by

$$1, 1.70, 2.40, 3.10, 3.80, \&c.$$

which are the terms of an arithmetic progression of which the common difference is .70, a number which has already been used in Art. 15. (See forward, Section 4.)

* [These terms are obtained thus: by note to Art. 13

$$\begin{aligned} \frac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)} &= .69315 \left\{ f + \frac{1}{2} - \frac{1}{12f} + \frac{1}{24f^2} - \&c. \right\} \\ &= \left\{ \left[1 + (f-1) \times .70 \right] - \left[f \times .00685 - .04657 - \frac{.69315}{12f} \right] + \&c. \right\} \\ &= \left\{ 1 + (f-1) \times .70 \right\} \text{ nearly } \text{---} (1). \end{aligned}$$

if we neglect the other terms, which are small until f is very large, and in the aggregate do not affect the first decimal place of the value of $\frac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)}$,

a degree of approximate accuracy sufficient for the determination of *ratios*, and agreeing with the results obtainable from the Table of Hyperbolic Logarithms. The results above are in deficit, while f does not exceed 5, and the converse for subsequent values.]

SECTION II.

OF PRESENT VALUE AND DISCOUNT.

ART. 18.—When money is calculated at compound interest, the present value, or sum to be given at present, instead of a payment due at the end of a certain number of years, must be such that, if laid out at interest for that time, it would become equal to the amount due. The problem of determining the *present value* is consequently the inverse of finding the *amount*, to which a sum of money would accumulate at compound interest. The principles adduced in Section I. will apply here.

The discount on a given sum is the difference between its amount at the future time when it will be due and its present value.

Let P = the present value,

S = the sum due at the end of n years (called the amount in Section I.)

i = the yearly rate of interest per pound,

then P invested at compound interest i for n years must become equal to S , \therefore by Art. 1, $P \cdot (1 + i)^n = S$

$$\therefore P = \frac{S}{(1 + i)^n} = S (1 + i)^{-n} \dots \dots \dots (1)$$

where n is an integer.

And if D = the discount,

$$D = S - P$$

$$= S \{ 1 - (1 + i)^{-n} \} \dots \dots \dots (2)$$

If the value of D be expanded by the Binomial Theorem,

$$\begin{aligned} D &= S \left\{ 1 - \left(1 - n \cdot i + \frac{n(n+1)}{1 \cdot 2} \cdot i^2 - \&c. \dots \right) \right\} \\ &= S \cdot n i - \&c. \end{aligned}$$

shewing that the common rule in practice of taking $D = S n i$ found by neglecting the other terms of the series.

If n be not a whole number, then equation (2) Art. 1, must be used

$$19.-\text{Since } P = \frac{S}{(1+i)^n}$$

if we have a table shewing the amount $(1+i)^n$ to which £1 will accumulate in n years at compound interest, the present value of any sum S due in n years will be equal to the quotient of S divided by $(1+i)^n$.

Example: To find the present value of £30 due at the end of 5 years, supposing interest to be compound at 3 per cent. :—

Now Table 3 shews that the amount of £1 in 5 years at 3 per cent. is £1.1592.

$$\therefore \text{the present value of } £30 = \frac{30}{1.1592} = £25.8799$$

20.—If the interest, instead of being supposed payable only *once* a year, be payable, in m equal portions $\frac{i}{m}$, m times a year;

$$\text{then, as before, } P \left(1 + \frac{i}{m}\right)^{m n} = S$$

$$\therefore P = S \cdot \left(1 + \frac{i}{m}\right)^{-m n} \dots\dots\dots (3).$$

$$D = S \left\{ 1 - \left(1 + \frac{i}{m}\right)^{-m n} \right\}$$

21.—If the interest be realised momentarily or $m = \infty$, then, by Art. 3, $P \cdot e^{n i} = S$

$$\therefore P = S e^{-n i} \dots\dots\dots (4).$$

$$D = S (1 - e^{-n i})$$

It will be observed, that the problems connected with *present values* differ from those relating to the *amount* of money by the introduction of $-n$ for $+n$.

$$22.—\text{Since } (1+i)^{-n} = (1+i)^{-n_1} (1+i)^{-n_2}$$

where $n = n_1 + n_2$, we have for present values a property corresponding to that in Art. 4, viz. *Theorem 9*:—

The present value of £1, due at the end of n years, is equal to the product of the present values of £1 due at the end of n_1 and n_2 years respectively.

Similarly where $n = n_1 + n_2 + n_3 + \&c.$

23.—It has been shewn that, when interest is supposed payable *once* a year, the present value of a sum due n years hence is $= S \cdot (1+i)^{-n}$, but when interest is supposed payable m times a year, the present value $= S \cdot \left(1 + \frac{i}{m}\right)^{-m n}$

Now $\left(1 + \frac{i}{m}\right)^m$ is greater than $(1+i)$, which can be seen at once by expanding $\left(1 + \frac{i}{m}\right)^m$.

$$\text{Hence, } \left(1 + \frac{i}{m}\right)^{m n} \text{ is } > (1+i)^n$$

$$\therefore (1+i)^{-n} \text{ is } > \left(1 + \frac{i}{m}\right)^{-m n}$$

$$\therefore S \cdot (1+i)^{-n} \text{ is } > S \left(1 + \frac{i}{m}\right)^{-m n}$$

Or, *The present value of any sum S due n years hence, is greater, if interest be supposed payable only once a year, than if it be supposed payable m times a year.*

Similarly: *The present value is less in proportion to the greater frequency of the intervals in each year, at which the interest is supposed payable.*

24.—If the present value P of a sum S due n years hence be given by the tables, supposing interest payable *once* a year, the present value P_1 can be deduced when interest is payable m times a year.

$$\begin{aligned}
 \text{For } P_1 &= S \cdot \left(1 + \frac{i}{m}\right)^{-mn} = S \left(1 + i\right) \cdot \left\{ \frac{\left(1 + \frac{i}{m}\right)^m}{1 + i} \right\}^{-n} \\
 &= P \cdot \left\{ \frac{1 + m \cdot \frac{i}{m} + \frac{m \cdot (m-1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \&c..}{1 + i} \right\}^{-n} \\
 &= P \left\{ \frac{1 + i + \frac{1 \cdot \left(1 - \frac{1}{m}\right) \cdot i^2}{1 \cdot 2} + \&c.}{1 + i} \right\}^{-n} \\
 &= P \left\{ 1 + \frac{1 - \frac{1}{m}}{1 \cdot 2} \cdot i^2 \right\}^{-n} \text{ nearly, whence neglecting}
 \end{aligned}$$

higher powers of i , which, i being a decimal fraction of the order $\frac{1}{10^2}$, may be done provided n be not very large.

$$P_1 = P \left\{ 1 - \frac{n \cdot \left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 \right\} \text{ nearly } \dots \dots (1).$$

Example: Table 8 shews that, when interest is payable yearly, the present value P of £10 due 4 years hence at 5 per cent. is = 8·227.

If interest be payable half-yearly, or $m = 2$

$$\begin{aligned}
 \text{Then } n \cdot \frac{\left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 &= 4 \cdot \frac{\left(1 - \frac{1}{2}\right)}{2} (\cdot 05)^2 \\
 &= \cdot 0025
 \end{aligned}$$

$$\begin{aligned}
 \therefore P_1 &= 8 \cdot 227 (1 - \cdot 0025) \\
 &= 8 \cdot 227 \times \cdot 9975 = 8 \cdot 2064.
 \end{aligned}$$

25.—Respecting the difference between the *present values* of the same sum S due at the end of n years, according as it is calculated at compound interest i_1 per pound or i_2 per pound ; or on *the mode of ascertaining the surplus profit in discounting bills, or shares, payable at a long date* :—

Let P_{i_1} = present value at the rate of interest i_1

P_{i_2} = i_2

If interest be realised only *once* a year,

$$\begin{aligned} P_{i_1} - P_{i_2} &= S (1 + i_1)^{-n} - S (1 + i_2)^{-n} \\ &= S \{ (1 + i_1)^{-n} - (1 + i_2)^{-n} \} \dots (1). \end{aligned}$$

If interest be realised m *times* a year,

$$P_{i_1} - P_{i_2} = S \left\{ \left(1 + \frac{i_1}{m} \right)^{-mn} - \left(1 + \frac{i_2}{m} \right)^{-mn} \right\} \dots (2).$$

If interest be realised *momently*,

$$P_{i_1} - P_{i_2} = S \{ e^{-ni_1} - e^{-ni_2} \} \dots (3).$$

From these equations we have *Theorem 10*:—That the difference between the present values of a sum of money S due in n years, estimated at different rates of interest, increases up to a certain point with the value of n and then diminishes. That is to say, if one person A obtain a present loan P_{i_1} from another person B, in return for which he is to pay S at the end of n years ; and A, out of the money he has received, lend a sum P_{i_2} to a third party C, for which at the end of the n years he is also to receive S , which will enable to pay off his debt to B, then there is some value of n , such that the immediate profit derived by A is greatest. (*Vide Sect. 4*).

[NOTE to Art. 25.—When the interests are momentaneous, or the expression is a continuous function of the variable n , the maximum value can be determined at once by differentiation.

Taking equation (3), let

$$u = \{ e^{-ni_1} - e^{-ni_2} \} = \text{a maximum.}$$

i_1 being less than i_2 .

Differentiating with regard to n , we get by the property of maxima and minima : (see any Treatise on the Differential Calculus),

$$\frac{du}{dn} = -e^{-ni_1} \cdot i_1 + e^{-ni_2} \cdot i_2 = 0$$

$$\begin{aligned}
 \therefore \frac{e^{-n i_1}}{e^{-n i_2}} &= \frac{i_2}{i_1} \\
 \therefore e^{n(i_2 - i_1)} &= \frac{i_2}{i_1} \\
 n \cdot (i_2 - i_1) &= \text{Log}_e i_2 - \text{Log}_e i_1 \\
 n &= \frac{\text{Log}_e i_2 - \text{Log}_e i_1}{i_2 - i_1} \dots\dots\dots (4).
 \end{aligned}$$

To determine whether this result gives a maximum or minimum, we must differentiate a second time :

$$\begin{aligned}
 \therefore \frac{d^2 n}{d n^2} &= e^{-n i_1} \cdot i_1^2 - e^{-n i_2} \cdot i_2^2 \\
 &= - e^{-n i_2} \cdot i_2^2 \left\{ 1 - e^{n(i_2 - i_1)} \cdot \frac{i_1^2}{i_2^2} \right\} \\
 &= - e^{-n i_2} \cdot i_2^2 \left\{ 1 - \frac{i_2}{i_1} \cdot \frac{i_1^2}{i_2^2} \right\}
 \end{aligned}$$

(by substituting in the bracket the value of n found above),

$$= - e^{-n i_2} \cdot i_2 \{ i_2 - i_1 \},$$

which is *negative*, since i_1 was assumed to be less than i_2 ;

\therefore the value of n in equation (4) gives the number of years, for which the difference of the present values is a maximum.

Example: Let $i_1 = \cdot 05$ $i_2 = \cdot 06$.

$$\begin{aligned}
 n &= \frac{\text{Log}_e 6 - \text{Log}_e 5}{\frac{6 - 5}{100}} \\
 &= 100 (\text{Log}_e 6 - \text{Log}_e 5) \\
 &= 100 (1\cdot791759 - 1\cdot609438) \text{ see Table 12.} \\
 &= 18\cdot2321 \text{ years,}
 \end{aligned}$$

That is to say, the difference, between the present values of the same sums discounted respectively at 5 and 6 per cent. momentaneous interest, is greatest, when they are due at the end of 18·2322 years,

The above process will not serve for *yearly* interest, as the function of n varies by *finite* yearly increments in the value of n , and Differentiation does not apply. The very definition of a differential co-efficient has, by a strange oversight, been overlooked by several skilful writers on Interest, who have, probably through want of consideration, applied the differential calculus. But the time may be deduced indirectly from equation (4) by substituting, for the *yearly* interest, the equivalent momentaneous rate.]

SECTION III.

ON ANNUITIES.

ART. 26.—To find the *amount* of a yearly annuity of £1, payable for n years, supposing compound yearly interest at i per pound.

Unless the contrary be mentioned, annuities are supposed payable at the *end* of each year; and on this hypothesis tables are usually constructed. It will hereafter be shewn how such tables can be adapted to find the *amount* or *present value* of annuities payable at the *beginning* of each year or otherwise.

The motive for the analytical investigations in this section, proceeding on the supposition of the annuities being payable at the *end* of each year, or other interval of time, consists in the simplicity attending the reference of annuities to that Sum, which would purchase them, or to that of which the annuity is the Interest; as, in either case, whether it be purchased, or payable as interest, each instalment is due at the *end* of each year.

Let A_n be the symbol of the *amount* of an annuity of £1 for n years.

The expression can at once be found from that of the amount of a *single* sum £1. Art. 1.

For $(1 + i)^n$ = the *amount* of a single sum £1 at yearly interest i per pound in n years.

∴ $\frac{(1 + i)^n}{i}$ is the accumulated *amount* of a single sum $\frac{£1}{i}$ at yearly interest £1 on the sum $\frac{1}{i}$ in n years.

The difference $\frac{(1 + i)^n}{i} - \frac{1}{i}$ is therefore caused solely by the

accumulations of the yearly £1 during that time, or it = the amount of £1 annuity in n years.

$$\therefore A_n = \frac{(1+i)^n - 1}{i} \dots\dots\dots (1).$$

So that an annuity-table can be calculated at once from a table, which gives the accumulation of a single sum and its compound interest for any time. (*Vide Table 3.*)

27.—*Aliter.* Again, A_n = the sum of the amounts, to which each periodic instalment of the annuity, separately, accumulates at compound interest.

Now the *first* instalment accumulates during $(n-1)$ years, and therefore amounts to $(1+i)^{n-1}$. The *second* instalment bears compound interest for one year less, and therefore amounts to $(1+i)^{n-2}$, and so on. The *last* instalment being paid at the end of the n^{th} year bears no interest, and its amount therefore is merely £1.

$$\begin{aligned} \therefore A_n &= (1+i)^{n-1} + (1+i)^{n-2} + \dots + (1+i) + 1 \\ &= \text{£1} \cdot \frac{\{(1+i)^n - 1\}}{(1+i) - 1} \quad (\text{by the principle of geometric series.}) \end{aligned}$$

$$\therefore A_n = \text{£1} \cdot \frac{(1+i)^n - 1}{i}$$

\therefore For an annuity of £ a the expression is

$$a \cdot \frac{(1+i)^n - 1}{i} \dots\dots\dots (2).$$

In this equation the duration of the annuity is represented by n years, but it is obviously true whatever be the finite intervals of time, of which n is an integral number, and for each of which interest after the rate of i per pound is due. When solved with regard to any of the quantities which enter into it, any one of them can be found in terms of the rest. It may be mentioned,

that the solution required for determining i presents peculiar difficulties, from the equation for solution being of the n^{th} order.—(See Art. 45 in this Section.)

28.—Equation (1) will admit of many varieties of form according to the different conditions affecting the quantities which enter it:—As, whether the annuity or the interest are paid in more frequent intervals than once a year; or, whether the periods at which the annuity is supposed payable are the same, or differ from those at which the interest is due. In this Section we shall, however, notice only those cases, where the periods are the same for the instalments both of annuity and interest.

Let the annuity and interest be both payable m times a year in equal portions $\frac{a}{m}, \frac{i}{m}$ respectively, i being the *nominal yearly rate* of interest per pound;

Then we have to find the *amount* of an annuity $\frac{a}{m}$ payable during $m \cdot n$ intervals, each equal to the m^{th} part of a year, making the calculations at $\frac{i}{m}$ rate of interest. Hence equation (1) at once gives, putting $\frac{a}{m}, \frac{i}{m}$ and $m \cdot n$, for a, i and n respectively,

$$A'_n = \left(\frac{a}{m}\right) \frac{\left(1 + \frac{i}{m}\right)^{m \cdot n} - 1}{\left(\frac{i}{m}\right)}$$

$$\therefore A'_n = a \cdot \frac{\left\{\left(1 + \frac{i}{m}\right)^{m \cdot n} - 1\right\}}{i} \dots (2)$$

And by making $m = 2$, or 4 , &c., we have the amount of annuities supposed payable half-yearly, quarterly, &c.

29.—If the annuity and interest be both supposed payable at momentaneous intervals, then,

$$A_n = \frac{a}{i} (e^{n \cdot i} - 1) \dots \dots \dots (3)$$

$$30.—\text{Since } A_{n+1} = \frac{(1+i)^{n+1} - 1}{i}$$

$$= \frac{(1+i)^n - 1}{i} + (1+i)^n$$

$$= A_n + (1+i)^n$$

$$\therefore A_{n+1} - A_n = (1+i)^n \dots \dots \dots (4)$$

= Amount of a single sum at interest in n years.

Hence, inversely, †*Theorem 11*:—

A table of the amount of a *single* sum can be deduced, if required at once, by taking the *differences* of an *Annuity* Table.

31.—To find the *present value* of a yearly annuity of £1 for n years, payable at the *end* of each year.

Let P_n = present value required.

By a simple demonstration, as in Art. 26, since the present value of £1 due in n years = $(1+i)^{-n}$

The present value of the periodic instalments of *interest* i on the £1 must alone = $1 - (1+i)^{-n}$

(Since the diminution of value is produced by the interest deducted.)

\therefore Dividing both sides by i

$$P_n = \text{the present value of an annuity of } \pounds 1 = \frac{1 - (1+i)^{-n}}{i} \dots (1)$$

And an *annuity* table of present values can be deduced at once from a given table of the present value of *single* sums.

32.—Aliter,—again, P_n is the *sum* of the *present values* of each of the annuity payments discounted at compound interest.

Now the present value of the 1st annuity payment of £1,

discounted for 1 year, is $\frac{1}{1+i}$

„ the present value of the 2nd

discounted for 2 years, is $\frac{1}{(1+i)^2}$

„ the present value of the 3rd

discounted for 3 years, is $\frac{1}{(1+i)^3}$

&c. &c.

Similarly the present value of the last or n^{th} annuity payment

of £1 discounted for n years is $\frac{1}{(1+i)^n}$

$$\therefore P_n = £1 \left\{ \frac{1}{(1+i)} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^n} \right\}$$

And this is true whatever be the value of n .

Summing this series by the rule of geometric progression,

$$P_n = \left\{ \frac{1 - \frac{1}{(1+i)^n}}{i} \right\} = \left\{ \frac{1 - (1+i)^{-n}}{i} \right\}$$

And for an annuity of £ a the expression is

$$= a \left\{ \frac{1 - (1+i)^{-n}}{i} \right\} \dots \dots \dots (2)$$

Tables 9, 10 and 11 give the value of annuities at various rates of interest.

33.—The result in Art. 32 might have been obtained directly by observing, that the present value of an annuity for n years is



equal to the *present value* of the *amount* of the annuity at the end of n years discounted for that time.

$$\begin{aligned}\therefore P_n &= \frac{A_n}{(1+i)^n} \\ &= \frac{1}{(1+i)^n} \left\{ \frac{(1+i)^n - 1}{i} \right\} \quad (\text{By Art. 26.}) \\ \therefore P_n &= \left(\frac{1 - (1+i)^{-n}}{i} \right), \text{ as before.}\end{aligned}$$

$$\text{* or } \frac{1}{P_n} - \frac{1}{A_n} = i \dots\dots\dots (2 \text{ bis}).$$

Hence †*Theorem 12:—The difference between the Reciprocals of the present value and amount of an annuity of £1 is equal to the rate of interest allowed per pound.*

Example: The *present value* of an annuity of £11.72 a year for 10 years, at 3 per cent., is £100; then, if the *amount* were desired to be known at the end of 10 years, eqⁿ (2 bis) would give it at once equal £11.4 nearly.

Again, eqⁿ (2 bis) gives

$$\frac{1}{P_{n-1}} - \frac{1}{P_n} = \frac{1}{A_{n-1}} - \frac{1}{A_n} \dots\dots\dots (2 \text{ ter}).$$

OR †*Theorem 13:—The difference of the reciprocals of the present values of an annuity is the same as that of the reciprocals of the corresponding annuity amounts.*

$$\begin{aligned}\text{34.}—\text{Since } P_{n-1} &= \frac{1 - (1+i)^{-(n-1)}}{i} \\ &= \frac{1 - (1+i) \cdot (1+i)^{-n}}{i} \\ &= \frac{1 - (1+i)^{-n}}{i} - (1+i)^{-n} \\ &= P_n - (1+i)^{-n}\end{aligned}$$

$$\therefore (1+i)^{-n} = P_n - P_{n-1} \dots\dots\dots (3)$$

* [This equation (2 bis) presents a property, that may be made of the greatest practical service, in deducing, without reference to tables, the *present value* of an annuity when the *amount* is known, and the converse. See also Section 4.]

i.e. the present value of a *single* sum due in n years = the difference of the present values of an annuity for n and $(n - 1)$ years.

Whence, inversely, †*Theorem 14*:—A table of present values for *single* sums can be deduced from a table of annuity-present values by taking the differences.

35.—If the annuity and interest be payable in m equal portions each year, the present value becomes

$$P_n = \frac{a}{m} \cdot \frac{1 - \left(1 + \frac{i}{m}\right)^{-mn}}{\frac{i}{m}}$$

$$= \frac{a}{i} \cdot \left\{ 1 - \left(1 + \frac{i}{m}\right)^{-mn} \right\} \dots\dots(4)$$

And by putting $m = 2, 4$, &c. we have the present value of annuities payable half-yearly or quarterly, &c.

36.—* If the annuity, as well as the interest, be payable momentarily, then

$$P = \frac{a}{i} (1 - e^{-ni}) \dots\dots\dots(5)$$

* [The results given above and in Art. 29 for momentaneous interest can be found at once thus:—

Let the time, during which the annuity is payable, be represented by T ;

dt = an element of time;

a_1, i_1 be the rates of annuity and interest respectively payable in each unit of time;

$\therefore a_1 dt$ = the rate of annuity in the time dt

$$\therefore \text{Amount of the annuity} = \int_0^T a_1 \cdot e^{i_1 t} dt = a_1 \cdot \frac{e^{i_1 T} - 1}{i_1}$$

Also

$$\text{Present value of the annuity} = \int_0^T a_1 \cdot e^{-i_1 t} dt = a_1 \cdot \frac{1 - e^{-i_1 T}}{i_1}$$

the integration being effected between the limits $t = 0$ and $t = T$.]

37.—To determine the relations between the *amounts* of a yearly annuity of £1, according as it is supposed payable for n years, at the *end* or at the *beginning* of each year.

Let A_n = the amount of annuity for n years, payable at the *end* of each year;

Then A_{n+1} = do. for $(n+1)$ years, &c.

Also let A_n^{11} = do. for n years payable at the *beginning* of each year.

Then, as in Art. 27,

$$A_{n+1} = (1+i)^n + (1+i)^{n-1} + \dots + (1+i) + 1$$

$$\text{and } A_n^{11} = (1+i)^n + (1+i)^{n-1} + \dots + (1+i).$$

This value of A_n^{11} is found by remarking that the *first* instalment of the annuity is improved for n years, and the *last* instalment for one year.

$$\therefore A_n^{11} = A_{n+1} - 1 \dots \dots \dots (1)$$

This formula is important, as it enables the amount of yearly annuities, payable at the beginning of each year, to be determined from a Table for annuities payable at the end of each year.

38.—To determine the *present value* of an annuity of £1 a year for n years, payable at the *beginning* of each year, from a Table giving the present value of the same annuity, supposing it to be paid at the *end* of each year.

Let P_{n-1} = the present value of an annuity for (n — years, payable at the end of each year;

P''_n = the same for n years, payable at the beginning each year.

Now, by Art. 32,

$$P_{n-1} = \frac{1}{(1+i)} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^{n-1}}$$

$$P''_n = 1 + \frac{1}{(1+i)} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^{n-1}}$$

$$\therefore P''_n = 1 + P_{n-1} \dots \dots \dots (2)$$

Example (see Table 10).

We find that £4·5797 is the *present value* of £1 a year payable at the *end* of each year for 5 years, calculated 3 per cent. rate of interest.

Therefore £5·5797 is the present value of £1 a year payable at the *beginning* of each year for 6 years.

39.—In the preceding propositions we have determined amount and present value of annuities. We shall now proceed to examine the practical application of the formulæ.

A given sum P is borrowed for n years. To determine what annuity a , paid for that time in m equal portions $\frac{a}{m}$ every year will pay off the principal and interest thereon also supposed m times a year, $m \cdot n$ being an integer.

$$\text{Here } P = \frac{a}{m} \cdot \frac{1 - \left(1 + \frac{i}{m}\right)^{-m \cdot n}}{\frac{i}{m}}, \quad (\text{Art. 32.})$$

$$\therefore \left(\frac{a}{m}\right) = \frac{P \left(\frac{i}{m}\right)}{1 - \left(1 + \frac{i}{m}\right)^{-m \cdot n}} \dots \dots \dots$$

40.—Let the time n be such that the sum P , if unpaid, would accumulate at compound interest to f -fold its original value. See Art. 13.

$$\text{Then } f \cdot P = P \left\{ 1 + \frac{i}{m} \right\}^{m \cdot n}$$

$$\therefore \text{From Art. 39 above, } \left(\frac{a}{m} \right) = \frac{f}{f-1} \cdot P \left(\frac{i}{m} \right) \dots \dots \dots (2).$$

$$\text{or, } a = \frac{f}{f-1} \cdot P \cdot i \dots \dots \dots (3).$$

Hence, †*Theorem 15*:—If a sum of money be borrowed for such a time, that, if unpaid, it would amount to f -fold its original value, then the annuity which would pay it off, principal and interest, in that time is equal to $\frac{f}{f-1}$ times one year's interest on the debt.

The accuracy of the theorem requires that the intervals, at which the instalments of the annuity are paid, should be aliquot parts of the whole period over which it extends. When the interval is small, as in the case of monthly payments, the formula (2) may be applied without reservation, and differs by an inappreciable quantity from the truth; and even for yearly payments the error in (3) is practically of no importance.

In proceeding to apply this theorem, we shall consider f as given, and equal to some whole number, in which case $m \cdot n$ is always fractional, but this circumstance, for the reasons above given, will not interfere with the practical accuracy of the solution.

41.—Let $f = 2$, or the time be that in which money would double at compound interest.—See Art. 13.

$$\therefore \text{From equation (3), the annuity} = 2 P \cdot i \dots \dots \dots (1)$$

or, †*Theorem 16*:—If a sum of money be borrowed for such a number of years, that if unpaid it would by yearly compound interest double itself, then the debtor can liquidate his debt with

interest in that time by a yearly annuity equal to *twice* one year's interest on the sum borrowed; the last payment of the debtor being a fractional portion of the year's annuity proportionate to the fractional number of days.

42.—If the payments be made monthly, as in Building Societies:

The monthly payment = twice the interest for one month.

Example 1.—In a 14 years' Building Society, calculated at 5 per cent. monthly rate of interest, the shares are £120, of which the present value is £60, because money doubles itself in nearly 14 years at 5 per cent.; to find the monthly payment $\frac{a}{12}$ for 14 years, which will pay off a debt of £60, including principal and interest thereon as it accrues,

$$\text{Here } P = 60$$

$$i = .05$$

$$\frac{i}{12} = \frac{.05}{12}$$

$$\therefore \text{the monthly payment } \left(\frac{a}{12}\right) = P \times \frac{2i}{12} = \text{£}5.$$

$$= 10^{\text{th}}$$

That is to say, 10th a month for nearly 14 years will pay off a debt £60 borrowed at the beginning.

This explains the principle of those Societies that charge 10th a month for that purpose.

Example 2.—In 10 years' Societies formed on a basis of 7 per cent.

As before, $P = 60$, but $i = .07$.

$$\therefore \text{the monthly payment } \left(\frac{a}{12}\right) = P \times \frac{2i}{12}$$

$$= 60 \times \frac{.14}{12} = \text{£}7$$

$$= 14^{\text{th}}$$

Therefore a monthly payment of 14th for about 10 years will pay off the debt £60 with interest. Hence the charge of 14th a month in such Societies.

43.—The theorem in the preceding articles, which has been so investigated to bring forward certain points in the working of Benefit Building Societies, may also be proved thus, and put under another form.

If a single sum £1 accumulates in a certain time to £ f
 \therefore The periodic interest i on the £1 has amounted to £ $(f-1)$
 (since it is by the interest that the result is produced).

\therefore Dividing both sides by i , we have

†Theorem 17:—The amount of an annuity of £1
 (in the time in which a single sum becomes f -fold its original value,) is equal to £ $\frac{f-1}{i}$.

$$\text{or} = \text{£} \frac{100(f-1)}{\text{rate of interest per cent.}}$$

Ex. Let $f = 2$, then,

†Theorem 18:—The amount of £1 a year, in the *exact time in which a single sum would double, is equal $\frac{\text{£}100}{\text{rate per cent.}}$

44.—If P be a present sum borrowed, and it be determined to set aside every year a certain proportionate amount (as c per cent.) in the shape of a repayment annuity to repay principal and interest at the nominal yearly rate of i per pound:—To determine the number of years n in which the debt would be cleared off.

Here the annuity repayment is $\frac{c}{100} \cdot P$

$$\text{Hence } P = \frac{cP}{100} \cdot \left\{ \frac{1 - (1+i)^{-n}}{i} \right\}$$

$$\therefore \frac{100 \cdot i}{c} = 1 - (1+i)^{-n}$$

$$(1+i)^{-n} = 1 - \frac{100 \cdot i}{c}$$

* [The reader will notice this word "exact," as it is not intended to introduce two approximations into the theorem.]

$$\begin{aligned}
 -n \cdot \text{Log.}(1+i) &= \text{Log.} \left(1 - \frac{100 \cdot i}{c} \right) \\
 \therefore n &= - \frac{\text{Log.} \left(1 - \frac{100 \cdot i}{c} \right)}{\text{Log.}(1+i)} \dots\dots\dots (1).
 \end{aligned}$$

45.—To determine the rate of interest at which a given annuity will amount to a given sum in a stated number of years:

$$\begin{aligned}
 \text{then } A_n &= \frac{a}{i} \left\{ \frac{1+i^n}{1+i} - 1 \right\} \\
 \therefore (1+i)^n &= \frac{A_n}{a} i + 1
 \end{aligned}$$

No complete method has yet been discovered for solving this equation of the n^{th} degree; several modes of approximation have, however, been given by various eminent writers on this subject, which serve to determine the value of i with great exactness, although they are rather complicated in their application. The formulæ are obtained by expanding $(1+i)^n$ by the Binomial theorem, and deducing a result by neglecting terms involving powers of i above the third. The following appears to give the nearest approximation:

$$\begin{aligned}
 \text{Let } d &= \left\{ \frac{A_n}{a \cdot n} \right\}^{\frac{2}{n-1}} - 1 \\
 \text{Then } i &= \frac{\{12 + (n+1) \cdot d\} d}{12 + 2(n+1)d} \dots\dots\dots (1).
 \end{aligned}$$

46.—For ordinary practical purposes a value, which can be corrected by logarithms, may be deduced in the following manner from a table giving the *amounts* of annuities at successive rates of interest.

Let A_{i_1} = the amount of £1 a year in n years at i_1 per pound rate of interest;

$A_{(i_1 - \frac{1}{100})}$ = the amount at $\left(i_1 - \frac{1}{100}\right)$ per pound rate of interest;

Then supposing the amounts for consecutive rates of interest to ascend by equal differences, we have, whether i be greater or less than i_1 , as the signs will rectify themselves:

$$\frac{i - i_1}{i_1 - (i_1 - 100)} = \frac{\frac{A}{a} - A_{i_1}}{A_{i_1} - A_{(i_1 - 100)}}$$

$$\therefore i = i_1 + \frac{\frac{A}{a} - A_{i_1}}{100 (A_{i_1} - A_{(i_1 - 100)})} \dots \dots (2)$$

This result will be slightly in *excess*, because in reality the difference between successive amounts of annuities increases more rapidly than the corresponding increments of interest.

Example: Let £6 a year amount to £120 in 10 years at i per pound yearly interest, then $\frac{A}{a} = 20$, $n = 10$.

To obtain the nearest approximation, we will take i_1 equal to the highest rate in Table 9, which is 10 per cent., whence

$$\begin{aligned} A_{.10} &= 15.9374 \\ A_{.09} &= 15.1929 \\ \therefore i &= .10 + \frac{20 - 15.9374}{100 \{15.9374 - 15.1929\}} \\ &= .15 \text{ nearly.} \end{aligned}$$

One or two trials by logarithms, on substituting this value in the equation

$$10 \text{ Log. } (1 + i) = \text{Log. } (1 + 20i)$$

Give the correct value $i = .145$
or the rate per cent. $= 14\frac{1}{2}$.

47.—To determine the value of i when the present value, the annuity, and the number of years are given.

The equation for solution is $P = a \cdot \frac{1 - (1 + i)^{-n}}{i}$ which

come, which may be annually written off as profit, diminishes slowly as n increases, passes through a minimum, and then steadily increases. For the two rates 5 and 7 p. c. the minimum is upon a loan for thirteen years, at all other periods the difference is greater. In clause 12, art. 151,* in the set of rules given in Chapter VII. for a permanent Building Society, we recommend only a portion of the surplus income to be carried to the Management and Contingent Fund.

51.—A member borrows £P for n years at $\frac{i_1}{12}$ per pound *monthly* rate of interest. This loan he is to repay by periodic instalments including principal and interest. To find the *difference* between the requisite payments according as they are annual or monthly.

If he pay *annually*, let a = annual payment.

monthly, $\frac{b}{12}$ = monthly payment.

$$\therefore P = a \frac{1 - (1 + i_1)^{-n}}{i_1} \dots \dots \dots (1).$$

$$\text{Or, } P = \frac{b}{12} \cdot \frac{1 - \left(1 + \frac{i_1}{12}\right)^{-12 \cdot n}}{\frac{i_1}{12}} \dots \dots \dots (2).$$

$$\therefore 0 = a \cdot \left\{ 1 - (1 + i_1)^{-n} \right\} - b \left\{ 1 - \left(1 + \frac{i_1}{12}\right)^{-12n} \right\}$$

$$b = a \cdot \frac{1 - (1 + i_1)^{-n}}{1 - \left(1 + \frac{i_1}{12}\right)^{-12n}}$$

$$\therefore a - b = a \cdot \frac{(1 + i_1)^{-n} - \left(1 + \frac{i_1}{12}\right)^{-12n}}{1 - \left(1 + \frac{i_1}{12}\right)^{-12n}} \dots \dots \dots (3).$$

* [Although the repayment-difference passes through a minimum, the percentage of advantage shown by comparing the difference with the repayment is always increasing.]

In the permanent society described in Chapter IV. the repayments are calculated by equation (1). If it were practically possible to invest the money of the society every month as soon as received, then the value of b given by equation (2) would cover the repayment of the loan P with interest, and there would be a yearly gain, in the receipts, represented by $(a - b)$.

52.—To determine the excess of Accumulation obtained at the end of n years, by the receipt and immediate reinvestment of the monthly subscriptions at *monthly* interest after the rate of i_1 per pound; when the Investors are only promised the accumulation of their subscriptions, as if paid yearly and invested at compound yearly interest i per pound.

Let A = the amount at $\frac{i_1}{12}$ per pound monthly interest,

B = the amount at i per pound yearly interest,

$\frac{a}{12}$ = the monthly subscription,

$$\therefore A = \frac{a}{12} \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{\frac{i_1}{12}} \right\}$$

$$B = a \left\{ \frac{(1 + i)^n - 1}{i} \right\}$$

$$A - B = a \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{i_1} - \frac{(1 + i)^n - 1}{i} \right\} \dots (1).$$

53.—If the repayments of the Borrowers be deferred n_1 years, the annual instalment for n years, to liquidate the debt with the arrears of interest thereon, will be given by the equation

$$P \cdot (1 + i_1)^{n_1} = a \cdot \frac{1 - (1 + i_1)^{-n}}{i_1}$$

$$\therefore a = P \cdot i_1 \cdot \frac{(1 + i_1)^{n_1 + n}}{(1 + i_1)^n - 1} \dots \dots (2).$$

whence the values of n can be obtained with facility by means of one table, viz. Table 3.

54.—NOTE to page 49. On the adjustment of the amount of contribution per share to be paid by Borrowers in a terminating Building Society, as their quota towards making up a deficiency in the amount required at the epoch of its expected termination, in order to enable the Investors to receive their shares in full.

Let D = the deficiency,

m = number of Investors' (or unadvanced) shares,

f = total monthly income from subscriptions on the same,

g = total monthly income from Borrowers' repayments,
where the payments on each share are not necessarily the same:—

Then:—1st. If the society's existence, and consequently the members' subscriptions, were continued for the purpose of making up D ; as no new Borrowers would be found, the money received must remain idle or be invested in the public funds.

Let x = number of extra months' subscription,

i = the *average* monthly interest obtained per pound,

and suppose the existing assets to produce, through interest, just sufficient income to cover the current office expenses during the extra months,

$$\therefore D = (f + g) \cdot \left\{ \frac{(1 + i)^x - 1}{i} \right\}$$

$$\therefore (1 + i)^x = 1 + \frac{D i}{f + g}$$

$$\therefore x = \frac{\text{Log.} \left(1 + \frac{D i}{f + g} \right)}{\text{Log.} (1 + i)} \dots\dots\dots (1).$$

2dly. If, instead of continuing the society for the additional months, the holders of unadvanced shares consent to waive their right to receive them in full, and be willing to put up with some loss, in order to receive whatever money they can at once; the Borrowers must contribute their share of the *present value* of D , or of

$$D (1 + i)^{-x} \quad \text{or} \quad \frac{D}{1 + \frac{D i}{f + g}}$$

Hence the unit of contribution from all members, both Investors and Borrowers, will be

$$\frac{1}{f+g} \cdot \left(\frac{D}{1 + \frac{D \cdot i}{f+g}} \right) \text{ or } \frac{D}{(f+g) + D \cdot i}$$

And the Borrowers must contribute g units, or a sum

$$= \frac{D \cdot g}{(f+g) + D \cdot i} \dots\dots\dots (2).$$

of which each Borrower contributes respectively in proportion to his units of monthly repayment to the society on his loan.

The remaining loss on each Investor's share will be

$$\frac{D}{m} \cdot \left\{ 1 - \frac{g}{(f+g) + D \cdot i} \right\} \dots\dots\dots (3).$$

55.—If a *valuation* be made prior to a deficiency being discovered, and it be sought to ascertain the probable future duration of the association, then

If A = clear cash assets over and above outstanding debts, accounts, loans due to bankers, &c.

e = average monthly expense that may be expected,

x = number of future months' duration,

s = amount of each investing share,

$$m \cdot s = A \cdot \left\{ 1 + i \right\}^x + \left\{ f + g - e \right\} \frac{(1+i)^x - 1}{i} \dots (4).$$

$$\therefore (1+i)^x = \frac{i \cdot m \cdot s + (f + g - e)}{A \cdot i + (f + g - e)}$$

$$\therefore x = \frac{\text{Log.} \left\{ 1 + \frac{i \cdot (m \cdot s - A)}{A \cdot i + (f + g - e)} \right\}}{\text{Log.} (1 + i)} \dots\dots\dots (5).$$

This equation is very simple in application, and depends on only one assumption respecting the future, viz. That a rate of monthly interest i per pound may be counted upon to the very end of the association. The practical judgment of the Actuary will know how to modify it when required.

56.—If no interest be expected to be realized, the result would be obtained either directly,

or by putting $i = 0$ in equation (4)

$$\begin{aligned} \therefore m.s &= A.1^x + \left\{ f + g - e \right\} \frac{1^x - 1}{0} \\ &= A + \left\{ f + g - e \right\} \cdot \frac{0}{0} \dots\dots\dots (6). \end{aligned}$$

To determine the limiting value of the fraction $\frac{0}{0}$ to which $\frac{(1+i)^x - 1}{i}$ is equal when $i = 0$, we must expand, or differentiate. Whence

$$\begin{aligned} \text{Limit } \left\{ \frac{(1+i)^x - 1}{i} \right\}_{i=0} &= \text{Limit } \left\{ \frac{x(1+i)^{x-1}}{1} \right\}_{i=0} \\ &= x \end{aligned}$$

Hence substituting in equation (6) we have

$$x = \frac{m.s - A}{f + g - e} \dots\dots\dots (7).$$

57.—In framing the *Liability and Asset* account referred to in art. 101, part 1, care must be taken to avoid giving an erroneous estimate of the present value of the mortgages. The difficulty consists in the circumstance, that their present value is greater, in favour of the society, the less the rate of interest assumed in discounting the repayments which they produce. The best way is to discount at the higher rate of interest i_1 , which is charged fundamentally from Borrowers. But it will be necessary to add a caution to the Managers, that the smaller present value, thus afforded in the making up of the society's assets, is merely the result of a proper precaution to avoid producing a fictitious amount of present profit, and that Redemptions should not be allowed upon such terms.

58.—NOTE to rule 3, clause 109. *Re Paid-up Shares*.—In calculating the single payment P_n to be required from a member in place of the monthly subscription for n years, the present value of the monthly annuity should be discounted at a lower rate of interest i_2 than that which the investors are credited with towards the realization of their shares, and the payment should be treated as due at the beginning of each half year, as a half-yearly annuity.

If $\frac{a}{12}$ = the monthly subscription,

$$P_n = \frac{a}{2} \left\{ 1 + \frac{1 - \left(1 + \frac{i_2}{2}\right)^{-(2n-1)}}{\frac{i_2}{2}} \right\} \dots\dots\dots (1).$$

Sometimes the societies, instead of using this formula, content themselves with discounting the *share s* itself (when it is proposed to pay it up) at i_2 interest, and not the monthly payments. This is not just when i_2 is $< i$, because although the member paying up his share should only receive discount, after i_2 interest, for the time which would elapse before his subscription become due, yet he should be credited with the higher rate afterwards. In other words, Managers use the formula :

$$\text{Single payment} = \frac{s}{(1 + i_2)^n}$$

instead of the equitable one given by (1), viz. :

$$\frac{1}{2} \cdot \frac{s i}{(1 + i)^n - 1} \left\{ 1 + \frac{1 - \left(1 + \frac{i_2}{2}\right)^{-(2n-1)}}{\frac{i_2}{2}} \right\} \dots\dots (2).$$

which is just as easy to use, since a is already known.

We have said that i_2 should be always $< i$, for which see *note in page 96*; it will also be regulated by the consideration as to how far Paid-up Shares are to participate in any surplus expenses or losses, over and above the management and contingent fund,

that may afterwards be discovered. Occasionally an arrangement is made, that, while partaking of the profits, they shall not be called upon to contribute to any excess of expenses or losses. This is a matter of arrangement, according to circumstances. It will, perhaps, in general suit the purposes of a society to covenant that a member paying up the whole of his shares shall be required, in case of future loss, to contribute after a rate proportional to *half* the number of years for which he has paid up. (See *Rule 12*, page 111.)

Too frequently the Managers are willing to discount at the higher rate i , which is taking the other extreme, and would be depriving the society of proper margin, or they charge $\frac{s}{(1+i)^n}$. The correct principle, however, is to adopt the formula (2), which is a value between the two extremes, $\frac{s}{(1+i_2)^n}$ and $\frac{s}{(1+i)^n}$.

In reference to this Article, the reader should consider Art. 25 of this Appendix, which contains an interesting point in the operations of discounting shares.

59.—NOTE to clause 144, page 108. *Re Withdrawals of unadvanced Shares*.—Referring to the rule, we propose that, according to the number of years' subscriptions paid, the rate of interest allowed on withdrawals should be raised.

Let a = one year's subscription,

n = number of years in which the shares are realizable,

i = the rate of interest, at which the subscriptions are credited, on the average, so as to amount to a share s in n years.

Let no interest be allowed on withdrawal until the end of the second year, when it shall be at the rate of $\frac{i}{n-1}$ per pound per annum, and let the interest allowed per annum ascend by equal differences, until it becomes i per pound, at the end of the last year for which the subscriptions are payable. Then the amount,

that might be paid to any member withdrawing at the close of the r^{th} year, would be represented generally by

$$W_r = a \cdot \frac{\left(1 + \frac{r-1}{n-1} i\right)^r - 1}{\frac{r-1}{n-1} i} \dots\dots\dots (1).$$

and by giving to r the values $1, 2, \dots, n$, a table of withdrawals would be formed from the corresponding values of W_1, W_2, \dots, W_n . It will be noticed that W_n must be $= s$, and that W_1 is a fraction of the form $\frac{0}{0}$, but that expression reduces itself to $W_1 = a$, on expanding, or differentiating by the usual rule in such cases.

60.—NOTE to Rule 12, page 111. *On the apportionment of any surplus profit, expenses, or losses*, which may be ascertained to exist after a periodic valuation of the society's affairs, at the end of any number of years n . In the case of expenses or losses, it would be supposed that they exceed the *management and contingent fund* and so leave a margin to be made up by the holders of unadvanced shares according to the terms of the clause 152.

Let P = the surplus profit or loss to be divided.

m_1 = number of existing unadvanced shares which were issued in the *first* year, or counted as of n year's standing.

m_2 = number of existing unadvanced shares which were issued in the *second* year, or counted as of $(n-1)$ years standing.

m_n = number of existing unadvanced shares which were issued in the n^{th} year, or counted as of 1 year's standing.

In which are included the paid up shares (see preceding article).

Then the aggregate units, among which the apportionment is to be made, are

$$= n \cdot m_1 + (n-1) \cdot m_2 + (n-2) \cdot m_3 + \dots + 2 \cdot m_{n-1} + m_n.$$

$$\text{The standard unit } U_1 = \frac{P}{n \cdot m_1 + (n-1)m_2 + \dots + 2 \cdot m_{n-1} + m_n}.$$

So that a share taken out in the r^{th} year, or of $(n-r+1)$ year's standing, has a right to receive in the way of profit, or is bound to contribute if it be loss that is apportioned, a sum

$$= (n-r+1) U_1 \dots \dots \dots (1).$$

Ex.: Let $P = \text{£}27..10s.$ surplus profit.

$$n = 3$$

$$m_1 = 125$$

$$m_2 = 50$$

$$m_3 = 75$$

Then $U_1 = \text{£}05$ or 1s

or the shares issued in the first year are entitled to 3s. per share, those in the second year to 2s., and those in the third to 1s.

If the apportionment be so made, as to have relation to the interest which the member is supposed to have acquired in the society, or to the then value of his shares, on the principle adopted in many *Life assurance offices*, the standard unit would become

$$U_2 = \frac{P}{m_1 A_n + m_2 A_{n-1} + \dots + m_{n-1} A_2 + m_n} \dots (2).$$

$$\text{Where } A_r = \frac{(1+i)^r - 1}{i} \text{ generally.}$$


The past payments being treated as made at the *end* of each year, and improved at i per pound interest (see Arts. 47 and 58, part 1). Hence a share taken out in the r^{th} year would bear $A_{n+1-r} \cdot U_2$ as its apportionment. Such a mode of calculating, at all events, the division of surplus profits, would, perhaps, be very *desirable*, as it would correspond to the principle of accumulation by which the unadvanced shares themselves are realised; but it would involve such an amount of trouble and consequently expense in the calculation, that it would be injudicious for any industrial association to incur it.

NOTE to Arts. 63, 113, 151, Part. 1. *On the Contributions to be required from Borrowers towards the Management and Contingent Fund.*

61.—The rate can be determined by the following considerations:—

In the articles referred to it has been sufficiently explained, that a fund must be formed to provide for unforeseen contingencies, which occur in Building and other similar institutions, and entail pecuniary loss, either through some investments turning out to have been made upon bad security, or by the legal and other expenses incurred in seeking the recovery of the unliquidated amount due by a borrower. The probability of loss does not arise from any inherent defect in the security itself usually accepted by these associations, but rather in the want of sufficient skill on the part of the officers, (who are employed to estimate its value or its goodness in a legal point of view,) or of proper attention in watching, afterwards, that the mortgagor does not in any way infringe the covenants which are involved in the *tenure* of the property. As, however, in the settling of the rules or deed of constitution, care must be taken that the investors (or those members who supply the money for advances) may not be unprotected in case of such error in judgment or inattention; and as, from the restricted means of the peculiar class from which the borrowers usually proceed, comparatively little, if any, protecting margin can be preserved between the saleable value of the property and the sum lent by the society, it is clear that an equitably adjusted contribution must be required, by way of commission or otherwise, from each borrower, that a Management and Contingent Fund may be formed with it, to which would be added the difference in the rates of interest referred to in Art. 57, Part 1; so that, on the average of investments, no positive deficiency of money may arise in the assets of the association.

If all the loans were of equal magnitude the rate per cent. could be adjusted by the results of the past experience of other similar institutions; but the case in practice is one of advances of every variety in amount within given limits; and the contingency of



pecuniary loss is not dependent upon the *Amount* of the advance, but is rather a function of human skill, experience and attention; hence, when a borrower seeks for an advance exceeding the magnitude of the majority of the loans for which a rate of contribution has already been settled, he entails, with an *equal chance* of loss, greater *money risk*; and he must pay to the contingent fund somewhat more than after the rate per cent. for smaller loans. For example: suppose that the majority of the advances are to the extent of 100*l.*, and the proper per centage on each were 1*l.*, then for special loans of 200*l.* or 300*l.* a higher contribution than 2*l.* or 3*l.* would be requisite; since, in the event of that individual security, upon which the larger sum is advanced, becoming a source of loss, there would not be sufficient money supplied by the other loans to make it up. For further illustration: let 10,000*l.* be advanced, not in 100 loans of 100*l.*, but in 98 of that amount and one of 200; if the rate from all of the contingent contributions were one per cent., the 100*l.* thus received would be sufficient only in case of loss arising from one of the 98 loans, consequently the rate for the 200*l.* should be so adjusted that the society may be paid, for speculating to its extent, in a rate proportioned to the money risk.

Instead of deducing a scale from the law of probabilities, based upon a fundamental assumption for the average of loans, we propose to meet the necessity of a fund, and to diminish the pressure upon the borrowers, by availing ourselves of the consideration that, as the society is essentially established to benefit both classes of its members by the operations of compound interest, and as its duration is of unlimited extent, the indemnity rate upon a loan, say, = *f. A*, may with propriety be proportioned to the restorative power of compound interest; or, upon each successive unit *A* of the capital advanced, the contribution may bear a relation to the *velocities* of *arithmetical augmentation*, by which a single capital *A* passes through the successive stages of accumulation from one-fold to two-fold, two-fold to three-fold, and so on, of its original magnitude; since it is thus that can be measured very accurately the advantage derived by a borrowing member, in being enabled to commute his otherwise unproductive *rent* payments to a land-

lord into the purchase-money of valuable property, which is all the more profitable to him, that the original payments converted are larger. Hence, referring to Art. 17 in this Appendix, the commission upon advances should be proportioned to the quantities represented by $\frac{\text{Log. } 2}{\text{Log.} \left(1 + \frac{1}{f}\right)}$ for successive values of f , in this manner, viz. :

Let the commission on a sum of £A, supposed to be the general amount of loans, be = c , then, upon a loan of 2 A, it should be = c upon the first unit A, and $c \cdot \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}}$ upon the second A, or together,

$$= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} \right\}$$

Again, upon a loan of 3 A, it would be $c \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} \right\}$ upon 2 A, and $c \left\{ \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} \right\}$ upon the 3rd A; or upon the whole 3 A

the commission should be = $c \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} + \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} \right\}$

And generally, upon a loan of f . A, the commission should be

$$= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} + \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} + \dots + \frac{\text{Log. } 2}{\text{Log.} \left(1 + \frac{1}{f}\right)} \right\}$$

$$= c \cdot f \cdot \left\{ 1 + \frac{.70}{2} (f-1) \right\} \text{ nearly} \dots \text{see note (a)} \dots (1).$$

when f is an integer.

[(a) The remarkable logarithmic series, from which this result is deduced, can only be summed with difficulty when the number of terms is considerable; as it requires transformations similar to those by which the summation of

62.—If it be desired to create an annual income to the fund, and the probable amount of loan business each year be ascertained, an equation can at once be deduced for determining the proper value of c to start with.

logarithms of numbers in arithmetic progression is effected, such as in the case of the eulerian integral usually designated by the letter Γ . The process depends upon the well known formula for integrating the function u_x : viz.

$$\begin{aligned} \sum u_x = \int u_x dx - \frac{u_x}{2} + \frac{B_1}{1.2} \frac{d u_x}{d x} - \frac{B_3}{1.2.3.4} \frac{d^3 u_x}{d x^3} + \dots \\ + (-1)^{n+1} \frac{B_{2n-1}}{1.2.3 \dots (2n)} \frac{d^{2n-1} u_x}{d x^{2n-1}} + \&c. \end{aligned}$$

where $B_1, B_3, \dots, B_{2n-1}$ are Bernoulli's numbers equal to $\frac{1}{6}, \frac{1}{30}, \dots$, $(-1)^{n+1} \cdot \frac{\log. (1 + \Delta)}{\Delta} \cdot 0^{2n}$ respectively.

$$\text{Putting } N_f = \frac{1}{\text{Log. } 2} + \frac{1}{\text{Log. } \frac{3}{2}} + \frac{1}{\text{Log. } \frac{4}{3}} + \dots + \frac{1}{\text{Log. } \left(1 + \frac{1}{f}\right)}$$

we can deduce

$$N_f = \frac{f^3}{2} + f - \frac{\text{Log. } f}{12} - C - \frac{1}{12f} + \frac{31}{720 f^3} + \&c. \dots (2)$$

in which the numerical calculation gives $C = .00063$.

Hence, referring to the text,

$$\begin{aligned} N_f \cdot \text{Log. } 2 &= f \left(\frac{f}{2} + 1 \right) \cdot 693147 \text{ nearly.} \\ &= f \left\{ f \times .34657 + .693147 \right\} \\ &= f \left\{ 1 + .03972 + (f-1) \times .34657 \right\} \\ &= f \left\{ 1 + \frac{.70}{2} (f-1) \right\} \text{ very nearly.} \end{aligned}$$

This arithmetic progression holds up to $f = 21$ within several thousand parts of unity; and for all practical purposes the terms of N_f after the two first may be neglected. *The same approximate result might have been obtained from equation (1), note to Art. 17.*

It will be noticed that (2) gives for N_f or the summation of the reciprocals of logarithms of the form $\log. \left(1 + \frac{1}{f}\right)$ a series, one part increasing with f , the other decreasing, analogous in form to the Sum of $\log. f = \text{Log. } (1.2.3 \dots f.)$

$$= \text{Log. } \sqrt{2\pi} + \left(f + \frac{1}{2}\right) \text{Log. } f - f + \frac{1}{12f} - \frac{2}{720} \cdot \frac{1}{f^3} + \&c.]$$

63.—In general, although c is deducted at once from the advance A , it is made to depend upon the duration of the mortgage, or it is taken $= n \cdot k \cdot A$, when the loan is for n years (k being a fraction).

Example: Let $k \cdot A = 4^{\text{th}}$ per annum upon a loan $A = £200$, granted for ten years, or the commission be £1 per cent. upon advances of £200, then the deduction upon a loan of £600 for ten years would, by equation (1), be $= £2 \times 3 \left\{ 1 + \frac{.70}{2} 2 \right\} = £10.2$ or £10 : 4s., which is £1 : 14s. per cent. on the £600 loan.

64.— f is treated in the arithmetic progression (1) as an integer, but the application can be modified without difficulty to calculate the deduction on advances not multiples of A .

THE DEPOSIT SYSTEM.

Respecting Single Deposits.

Art. 65.—To extend the operations and benefits of Industrial Associations, Sums of money might be received as deposits, for a nominal period of years, at interest, with power of withdrawal on demand, or with very short notice, of a portion thereof. Such a system would afford to the depositors the usual convenience of the savings banks, in respect to the withdrawal of their money; while they would obtain the advantages of a much more remunerative interest, provided the agreement were, that the interest already *due* upon any portion withdrawn (if that should happen) should remain over with the rest of the deposit, as an investment to be received at the expiration of the originally agreed term of years. On such an hypothesis, the *withdrawable* part of the principal should be considered as producing a less periodic interest, than both the other part of the deposit and the general instalments of interest themselves do when reinvested; or it should be treated as laid out in readily convertible securities, such as the public funds, exchequer

bills, &c., which produce but a moderate rate of interest. The remainder of the deposit, and the instalments of *interest* from time to time accruing on the withdrawable portion, (not being liable to unexpected demand,) can be laid out in much less available security, such as mortgages on land or houses at a higher rate of interest, or in fact they might be engaged in the society's operations. For example, if £10,000 were the amount of numerous deposits on such terms for an agreed period, and £2000 were withdrawable on demand, that sum should be invested in ready security, say at $2\frac{1}{2}$ or 3 per cent., and the remainder £8000 in more lucrative investment at 5 per cent., or even more, with the periodic annuity instalments of £50 or £60 a-year on the £2000, as from time to time they come in.

66.—*We have said that the right of withdrawal might be on demand, as the floating income of the society would much exceed, under ordinary circumstances, the average amount of applications.* A power, nevertheless, could and should be reserved, to the committee of management or directors, to *suspend withdrawal payments*, if an unexpected pressure caused too great inconvenience or menaced the stability of the society. As the institution would be based upon principles of co-operative mutuality, such a power would be strictly equitable.


67.—Let D_n = the amount payable in return for a deposit P , if invested and not withdrawn for n years.

$\frac{P}{m}$ = the portion which may, if required, be withdrawn on demand.

i' = the rate of interest at which $\frac{P}{m}$ is invested.

i = a higher rate, at which $\frac{m-1}{m} \cdot P$, and the periodic in-

stalments $\frac{P \cdot i'}{m}$ of interest at i' per pound on $\frac{P}{m}$, can be invested during the n years



Then it is plain that D_n is the amount of P at i per pound for n years, less the amount of a small annuity $\frac{P}{m}(i - i')$, accumulated at i interest, arising from the lower rate at which $\frac{P}{m}$ is invested; or

$$D_n = P \left\{ (1 + i)^n - \frac{i - i'}{m} \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots (1).$$

This equation contains results afforded by known tables such as those at the end of this work, so that a single deposit table can be readily calculated.

An identical result, but in another form, might be obtained, by a different mode of reasoning, in which

$$D_n = \frac{P}{m} \left\{ \left[m - 1 + \frac{i'}{i} \right] (1 + i)^n + 1 - \frac{i'}{i} \right\} \dots (2).$$

68.—Let the *whole* be withdrawable on demand, then $m = 1$ in equation (1) or (2),

$$\therefore D'_n = P \left\{ (1 + i)^n - (i - i') \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots (3).$$

or

$$D'_n = P \left\{ 1 + i' \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots \dots \dots (4).$$

69.—Let the m^{th} part of P not be withdrawable for μ years, which is the more general case, $n > \mu$, then

$$D_{n|\mu} = P \left\{ \overline{1 + i}^n - \frac{i - i'}{m} \frac{(1 + i)^{n-\mu} - 1}{i} \right\} \dots (5).$$

In practice, μ might be taken with advantage equal to 3.

Example:—Let £10,000 be deposited for 10 years with the understanding that, after 3 years, £2,000 may be withdrawn on demand.—Let 3 per cent. be the annual rate of interest allowed

upon the £2,000; and 5 per cent. be that upon the £8,000, and upon the annuity £60 a year.—Then by eqⁿ (5),

$$\begin{aligned} D_{10|5} &= 10,000 \left\{ (1.05)^{10} - \frac{.02}{5} \cdot \frac{1.05^7 - 1}{.05} \right\} \\ &= 10,000 \{ 1.6288 - .004 \times 8.142 \} \\ &= £15,962. \quad (\text{See Tables 3 and 9}). \end{aligned}$$

70.—To determine a relation between D_p and D_q any two terms in Art. 67, $p < q$.

Then, referring to the mode of investment,

$$D_q = D_p \cdot (1+i)^{q-p} - \frac{P}{m}(i-i^1) \cdot \frac{(1+i)^{q-p} - 1}{i} \dots (6).$$

If $q = p + 1$, the relation between the successive terms is given by

$$D_{p+1} = D_p \cdot (1+i) - \frac{P}{m}(i-i^1) \dots \dots \dots (7).$$

a form suitable for the calculation of the table.

71.—Referring to Art. 69, to determine a relation between two terms $D_{p|\mu}$ and $D_{q|\mu}$, where p and q are both greater than μ .

Since the μ years have elapsed, the relation will be identical in form with that (6) of the preceding article, or

$$D_{q|\mu} = D_{p|\mu} \cdot (1+i)^{q-p} - \frac{P}{m}(i-i^1) \cdot \frac{(1+i)^{q-p} - 1}{i} \dots (8).$$

Let $q = p + 1$.

$$\therefore D_{p+1|\mu} = D_{p|\mu} \cdot (1+i) - \frac{P}{m}(i-i^1) \dots \dots \dots (9).$$

72.—The case, where p is $< \mu$ and $q > \mu$, need not be considered, as the formula would be of no advantage in constructing a table.—Until $p > \mu$ the equation will be simply $D_p = P(1+i)^p$; after which equation (9) will serve.



73.—To determine in Art. 60, the remainder of the depositor's claim to be received at the end of the n years, if he withdraw $\frac{P}{m}$ when n_1 years ($n_1 < n$) have just expired.

As by the agreement n_1 must be greater than μ , the effect produced by the withdrawal of $\frac{P}{m}$ in reduction of the original amount $D_{n|\mu}$ will be equal to that amount, which by eqⁿ (4) $\frac{P}{m}$ would produce if deposited, for withdrawal on demand, for $(n - n_1)$ years.

$$\therefore \left. \begin{array}{l} \text{The remainder} \\ \text{of the claim} \end{array} \right\} = D_{n|\mu} - \frac{1}{m} \cdot D'_{(n-n_1)} \dots\dots (10).$$

A simple formula to ascertain the outstanding liabilities of the society upon those deposit shares of which a portion $\frac{P}{m}$ has been withdrawn.

If the Table represented by D'_n should not be ready at hand,

$$\left. \begin{array}{l} \text{The remainder of} \\ \text{the claim may} \\ \text{be calculated as} \end{array} \right\} = \left[D_{n_1|\mu} - \frac{P}{m} \right] (1 + i)^{n-n_1} \dots (11).$$

74.—Again, Art. 69, suppose that the m_1^{th} part only be withdrawn after n_1 years, where m_1 is $> m$; then the *Remainder of claim* as regards eqⁿ (10) will still be of the same form, viz.

$$D_{n|\mu} - \frac{1}{m_1} \cdot D'_{(n-n_1)}$$

$$\begin{aligned} \text{But, in respect to eqⁿ (11), it would be represented by the ex-} \\ \text{pression } \left[D_{n_1|\mu} - \frac{P}{m_1} \right] (1 + i)^{n-n_1} - P \cdot \frac{m_1 - m}{m \cdot m_1} \cdot (i - i^1) \cdot \\ \frac{(1 + i)^{n-n_1} - 1}{i} \dots\dots\dots (12). \end{aligned}$$

Where $D_{n_1|\mu}$ is a value given by the table used by the society to calculate $D_{n|\mu}$, and the expression is deduced by considering, according to eqⁿ (1), that $D_{n_1|\mu} - \frac{P}{m_1}$ is a sum of money invested

for $(n - n_1)$ years, with the understanding that a portion of it, equal to $\left(\frac{P}{m} - \frac{P}{m_1}\right)$, shall be withdrawable on demand.

If the withdrawal, in the preceding articles, take place in the course of any year, and not exactly at the end thereof, the preceding results would require to be modified with an allowance of simple interest for the fractional part of a year.

Annuity Deposits.

75.—Instead of a single deposit, as in Art. 69, let the contract be for a series of periodic deposits, each equal to P , during the n years, with the understanding that, after μ years have passed, the m^{th} part of the aggregate deposits invested may be withdrawn on demand, the remainder of the claim standing over to the end of the term. Then, representing by $AD_{n|\mu}$, the amount to which, if not withdrawn, they would accumulate, we have, since by the hypothesis of the question, the m^{th} part of all the deposits made, once μ years have elapsed, are liable to withdrawal on demand.

$$AD_{n|\mu} = \{D_{n|\mu} + D_{n-1|\mu-1} + D_{n-2|\mu-2} + \dots + D_{n-\mu+1|1}\} \\ + \{D_{n-\mu} + D_{n-\mu-1} + \dots + D_2 + D_1\} \dots \dots \dots (13).$$

$AD_{n|\mu}$ thus will be readily found, if the general tables for $D_{n|\mu}$ and D_n happen to have been calculated for the society.

76.—If not, the expression can be reduced by eqⁿ (1) and (5), to

$$AD_{n-\mu} = P \left[\left\{ \overline{1+i}^n + \overline{1+i}^{n-1} + \dots + \overline{1+i} \right\} - \frac{i-i^1}{m} \cdot \left[\frac{\mu \cdot \overline{1+i}^{n-\mu} + (\overline{1+i}^{n-\mu} + \overline{1+i}^{n-\mu-1} + \dots + \overline{1+i}) - n}{i} \right] \right] \\ = P \left[(1+i) \frac{\overline{1+i}^n - 1}{i} - \frac{i-i^1}{m \cdot i} \left\{ \mu \cdot \overline{1+i}^{n-\mu} + \overline{1+i} \cdot \frac{\overline{1+i}^{n-\mu} - 1}{i} - n \right\} \right], \text{ which results contain only quantities,}$$

that can be easily obtained from the ordinary Amount and Annuity tables 3 and 9.

77.—From the preceding equations, we have, when $p > \mu$, a relation between $AD_{p+1|\mu}$ and $AD_{p|\mu}$.

$$AD_{p+1|\mu} = (AD_{p|\mu} + P) \cdot (1+i) - (p+1) \frac{P}{m} (i-i') \dots (15).$$

78.—If a withdrawal take place at the end of n_1 years, and $\frac{P}{m}$ be withdrawn, the *Remainder of the Claim* (if no further payments be made),

$$= \left\{ AD_{n_1|\mu} - n_1 \cdot \frac{P}{m} \right\} (1+i)^{n-n_1} \dots \dots \dots (16).$$

79.—The preceding principle of adopting *two* rates of interest on the basis of a *Savings Fund* presents many advantages; on the one hand, greater inducements would be offered to the industrious to strive to effect savings, through the higher interest they may obtain; at the same time that the absence of power to withdraw, in a hurry, more than a small portion of their deposits would act as a check upon subsequent extravagance. Whilst, on the other hand, the government or private company which undertook the investment of the money received would be less exposed to inconvenience or loss through Withdrawals.

On the Purchase of Annuities.

Art. 80.—*Let it be desired to calculate the price P of £1 a year for n years certain, so that the annuity may pay the purchaser a high rate of interest i for his money, and yet be sufficient, over and above, to replace the capital P expended at the expiration of the term, by investing a portion of the annuity to accumulate at a moderate rate of interest i' per pound. This problem is important, as it not unfrequently happens that a purchaser desires to realize a higher rate of interest for the use of his capital, than he could obtain if he tried to reinvest a portion of the annuity; for instance, he may wish the annuity to pay him 6 or 7 per cent., whilst he might not himself be able to reinvest at more than 3 or 4 per cent.*

Let £1 a year for n years amount to A_{i^1} when accumulated at i^1 interest.

Then $\frac{1}{A_{i^1}}$ is an annuity, which would amount to £1 in the same time at the same rate of interest.

$$\therefore \frac{P}{A_{i^1}} \quad \text{do.} \quad P \quad \text{do.}$$

\therefore The annuity of £1, which is purchased at a cost of P , should be sufficient to give the purchaser Pi a year, and leave $\frac{P}{A_{i^1}}$ to be invested.

or

$$1 = Pi + \frac{P}{A_{i^1}}$$

$$\therefore P = \left(i + \frac{1}{A_{i^1}}\right)^{-1} \dots\dots\dots (1).$$

and P can readily be calculated by the aid of a table which contains the general amounts of annuities A (see Table 9). *The same could have been deduced from the remarkable property in eqⁿ 2 bis, Art. 33.*

81.— The result in (1), whilst it practically pays the *purchaser* only i interest for his capital, through his want of power of re-investing at a higher rate than i^1 , ($i^1 < i$), yet in reality is a charge upon the *grantor* of the annuity of a higher rate than i . For if the rate allowed by him to liquidate a loan of £ P were only i per pound, P would equal

$$\left(i + \frac{1}{A_i}\right)^{-1}$$

or the purchase money that he would receive for granting £1 a year would be more than is shown by equation (1), since $A_i > A_{i^1}$.

82.— The actual rate i_2 that it costs the grantor, who sells £1 a year at the price afforded by (1), would be obtained from

$$P = \frac{1 - (1 + i_2)^{-n}}{i_2}$$

On Deposit Life Assurance and Tentatives.

The formulæ for the system of Deposit Life Assurance, which we have previously mentioned, [Art. 35, chapter 2, page 25,] are simple and easily determined. As it presents another feature of provident investment for the savings of the industrious classes, a few words upon the system will not be out of place in this Appendix. The advantage offered consists of the Savings Banks' facilities of withdrawal of the whole or part of the deposit premium, whilst the benefits of an ordinary life office are secured. Adopting the now general notation,

Let l_x = number of lives in existence at age x by the table of mortality adopted.

r = the present value of £1, at i per pound, to be received in one year $= \frac{1}{1+i}$

a_x = the present value of an annuity of £1 payable at the end of each year, and to continue during the existence of a life aged x .

or $a_x = \text{Sum } \frac{l_x + y \cdot r^{x+y}}{l_x \cdot r^x}$ summed between $y = 1$ and $y =$ the number of years of extreme age in the table.

$\therefore 1 + a_x$ = value of £1 annuity during life, of which the first instalment is payable at once.

\therefore £1 = present value of a similar annuity of $\frac{1}{1 + a_x}$ a year.

Let p_x = the mathematical annual premium to assure the sum of £1 to be received at the end of the year in which the life x may die.

π_x = the office annual premium $= f(p_x)$

1.—Then p_x may be determined from a table of Life Annuities a_x in the usual way, or thus:—A person borrowing £1 at once for the term of his life could repay it with interest by an annual payment at the beginning of each year, consisting of the premium of assurance to restore the principal at his death, and annual interest i per pound, which if paid yearly in advance would be reduced to $\frac{i}{1+i}$.

\therefore £1 would be repaid by, and is therefore equivalent to, an annuity payment

$$\text{of } p_x + \frac{i}{1+i}.$$

But £1 (as we have said in the definition of a_x) would buy an annuity of $\frac{1}{1+a_x}$ on the same life involving the same rate of interest. These two values must be equal:

$$\therefore p_x + \frac{i}{1+i} = \frac{1}{1+a_x}$$

$$\therefore p_x = \frac{1}{1+a_x} - \frac{i}{1+i} \dots\dots\dots (1).$$

2.—Into the value of a_x , which is made use of in the preceding formula, enter the considerations depending on the table of mortality (see Table XV). That formula itself is identical, as it should be, in form with that, by which would be determined the requisite annual payment at the beginning of each year, or the sinking fund, to accumulate to £1 at the end of a term certain of $x + 1$ years, in terms of the *present* value P_x of an ordinary annuity £1 for x years, where

$$P_x = \frac{1 - (1+i)^{-x}}{i} \text{ (see Art. 31, Appendix), and}$$

$$\text{Annual payment or sinking fund} = \frac{1}{1 + P_x} - \frac{i}{1+i} \dots\dots\dots (1 \text{ bis})$$

3.—We may mention here, incidentally, that, if for a_x were substituted the values of an annuity for the whole duration of two or more lives, the formula would bear the same relation with regard to them, as it does to the single life, and the symmetrical form would be preserved.

4.—Let P = the single deposit money to purchase a life assurance policy D_x to be received at death, with the understanding that, after twelve months have elapsed, a sum equal to $\frac{P}{m}$ may be withdrawn on demand, or at very brief notice; then it would be requisite for the safety of the company to invest the withdrawable portions at a much lower rate of interest, or in immediately convertible securities, if it be desired to be always ready to meet all *withdrawal* demands. The chance of early repayment of the *whole* deposit, from being deducted through *death*, does not enter into that consideration, as, on an average of lives, supposing the general funds of the company to be invested in the usual manner, the payments and receipts would follow the law of mortality.

The calculation of D_x will therefore be analogous to that for determining the *single* premium for the assurance of £1; with this difference, that our plan consists in keeping the rates of interest allowed upon P or $\left(\frac{m-1}{m} P \text{ and } \frac{P}{m}\right)$ independent of the rate of interest and margin originally adopted in the determination of π_x , and in making a table containing the values of π_x the basis for calculating D_x ,

Let an ordinary whole life annual premium table be in use by the company.

i = the highest rate of annual interest that the company can afford to credit upon $\frac{m-1}{m} \cdot P$.

i^1 = a lower annual rate allowed upon $\frac{P}{m}$.

From the moment P is deposited, the assurance risk represented by D_x commences, although, according to the usual theoretical hypothesis (contrary

to the occurrence of actual practice), D_x is not payable until the *end* of the year in which the life (x) may die. Proceeding, however, on that supposition, the sum assured D_x will be equal to the deposit P and a sum ($D_x - P$) arising from the interests upon P . Now P , deposited, is credited with annual interest

$$= P \cdot \frac{(m-1)i + i^1}{m} \text{ due at the end of each year, which is equivalent to } \frac{P}{m} \left\{ \frac{(m-1)i}{1+i} + \frac{i^1}{1+i^1} \right\} \text{ at the beginning.}$$

Hence, since the annual premium π_x paid at the beginning of every year of life would assure £1 payable at the *end* of that year in which the life may die, the deposit P may be considered by the company as producing at the beginning

$$\text{of each year a premium} = \frac{P}{m} \left\{ \frac{(m-1)i}{1+i} + \frac{i^1}{1+i^1} \right\}$$

$$\begin{aligned} \therefore D_x &= P + \frac{P}{m} \left\{ \frac{(m-1)i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_x} = \\ &= P \cdot \left[1 + \frac{1}{m} \left\{ \frac{(m-1)i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_x} \right] \dots\dots\dots (2). \end{aligned}$$

5.—By this equation, a table of deposit assurances can be deduced from an ordinary life table on substituting the values of π_x at various ages; and the *Deposit-Policies* will be with or without profits, according to the hypothesis relative to π_x . In practice, it would be generally expedient and reasonable not to allow any withdrawals until after a small number of years μ , greater than one, in which case, the eqⁿ (2) should still be used, as it is not worth while to complicate it by the consideration that during $(\mu - 1)$ years the rate of interest i might be credited on the whole of P . The advantage would be in favour of the company. When μ is not less than 3, we consider that i^1 may be taken = .025 and i = .035. This will be understood by the consideration that in all investments of this kind accepted by Assurance Companies, or Benefit Building and other similar Societies, the larger the portion of his deposit over which the depositor has power of withdrawal on demand, the greater will be the capital which must be kept by the company in immediately convertible securities to meet sudden withdrawals; and the lower will be the average interest derived on the aggregate of its funds. If six months' or a year's notice were required of intended withdrawal, the case would be different.

6.—If $\pi_x = p_x$, $i^1 = i$ = the same rate involved in p_x , and $m = 1$, $D = 1$, eqⁿ (2) reduces to

$$1 = P \cdot \left\{ 1 + \frac{i}{1+i} \cdot \frac{1}{p_x} \right\} \dots\dots\dots (3),$$

the ordinary formula expressing the relation between the single premium P and the annual premium p_x to assure £1.

7.—As regards assurers, eq^a (2) gives the amount of policy which an *occasional* deposit would assure upon his life. To the industrious classes one or two smaller policies, created by single deposits, are more convenient than the general system by which a fixed premium is required at regularly recurring intervals, without their having, in most offices, any protection against the loss of the policy, in the event of the assurer's means not enabling him to keep up his payments. The advantage of an ordinary Savings' Bank is also presented, since a portion of his deposit money may be withdrawn on demand. Such policies would thus serve as negotiable commodities in commercial transactions.

8.—Suppose an ordinary *Annual Premium Policy* of Assurance to be taken out by a life aged x years, and, after a certain number of years y , the assurer desire to suspend all future payments, and to obtain, for his acquired interest in the company, a *Deposit-Policy*; then the amount thereof

$$= (\text{office value of old policy}) \times \left[1 + \frac{1}{m} \left\{ \frac{(m-1)i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_{x+y}} \right] \dots (4)$$

(the m^{th} part of the office value of the old policy being withdrawable).

9.—If after y years, $\frac{P}{m}$ be withdrawn on a deposit policy, the *diminution* in the policy, (found by reducing eq^a (2) to the case of the whole of the deposit being withdrawable on demand, and applying it to the effect produced by withdrawing $\frac{P}{m}$) = $\frac{P}{m} \left\{ 1 + \frac{i_1}{1+i^1} \cdot \frac{1}{\pi_{x+y}} \right\} \dots \dots \dots (5)$,
an endorsement upon the original deposit policy would then be made stating that it is diminished to the extent represented by (5).

10.—The Society should always get the benefit of the difference between the *office* and *real* age of the depositor, both at the time of entry and at that of withdrawal, with the distinction that x in (2) should be taken at *next* birthday, but $(x+y)$ in (5) at *last* birthday.

11.—By way of further illustration of the analogy between functions of annuities for *Terms certain* and for the *whole* duration of a life or lives, we will refer to Art. 30, and will show how the property $\frac{1}{P_n} - \frac{1}{A_n} = i \dots (1)$ will serve, in the case of a life annuity, to determine the *single premium* S_x to assure £1 at the death of a life aged x . [In No. 6 of these notes P stands for S_x .]

For the *present value* of an annuity of £1 payable at the end of *every* year, that the life x may enter, is $a_x + S_x$, this corresponds to P_n in equation (1). Again, the *accumulated amount* of such an annuity by the end of the year in

which life (x) may die would be $1 + \frac{a_x}{S_x}$; since it would consist of the last annuity payment + the improved amount of a_x , at the close of the duration of the life, which by proportion would be $\frac{a_x}{S_x}$; so that $1 + \frac{a_x}{S_x}$ corresponds to A_n in (1).

Then, since the analogy should subsist, the equation $\frac{1}{a_x + S_x} - \frac{1}{1 + \frac{a_x}{S_x}} = i$

must hold,

$$\text{whence } S_x = \frac{1 - i \cdot a_x}{1 + i} \dots\dots\dots (6)$$

which is the ordinary formula.

12.—The property in (1) can be remembered by the consideration that it expresses merely that

$$\left(\begin{array}{c} \text{The annuity for } n \text{ years,} \\ \text{which } \pounds 1 \text{ would purchase} \end{array} \right) - \left(\begin{array}{c} \text{The sinking fund to create} \\ \pounds 1 \text{ at the end of } n \text{ years} \end{array} \right) = \left(\begin{array}{c} \text{One year's} \\ \text{interest.} \end{array} \right)$$

Notes to the Tontine Chapter.

The principles referred to therein are simple :—

13.—Let T_x = number of persons alive at age x in the Tontine at an epoch of division,

l_x = number at same age in the table of mortality adopted for the calculation,

$l_{x+r.y} =$ at age $(x + r.y)$,

a = gross sum to be divided at each division after y years.

Then, by the mortality table, it is probable, that, at the age of $x + r.y$, there will be $T_x \cdot \frac{l_{x+r.y}}{l_x}$ alive to partake of the dividends; and the share of each would be then $\frac{a}{T_x + r.y}$. The present chance of a single person surviving to partake of the r^{th} division is $\frac{l_{x+r.y}}{l_x}$

Example: To determine the chance of a male aged 15 living to the age of 60. By Table 13, of 34574 males alive aged 15, 18808 live to be 60 years old. Hence the chance required is $\frac{18808}{34574} = .544$, or the odds are 544 to 456, or 68 to 57 in favour of the event.

14.—If in the course of a Tontine's existence, say at age $x + k$, a shareholder propose to sell the present value of his probable share in one division (say the r^{th}) if he survive it, then the purchase money, supposing money discounted at i per pound, should be

$$\frac{l_{x+r.y}}{l_{x+k}} \cdot \frac{1}{(1+i)^{r.y-k}} \cdot (\text{the probable amount of his share.})$$

$$= \frac{l_{x+r.y}}{l_{x+k}} \cdot \frac{1}{(1+i)^{r.y-k}} \cdot \frac{a}{T_{x+r.y}}$$

$$\text{But } T_{x+r.y} = \frac{l_{x+r.y}}{l_{x+k}} \cdot T_{x+k}$$

$$\therefore \text{Purchase-money} = \frac{1}{(1+i)^{r.y-k}} \cdot \frac{a}{T_{x+k}}$$

Or, the present value of his share in the r^{th} division is equal to a , divided by the number, who are *now* alive in the Tontine at the date of the sale, with a discount deducted for the $(r.y - k)$ years, which are to elapse before the division is to take place; or it is independent altogether of the probability of surviving to that date. This could be foreseen by the mere consideration, that the deduction to be made for the probability of the purchaser losing his money by the death of the life involved (if the probable future longevity of each existing life be equal as regards their present health) is exactly balanced by the increase of the value of his purchase, arising from the probability, that, as one of the Tontine survivors, he would become entitled to a much larger sum, by way of

dividend, than $\frac{a}{T_{x+k}}$, viz. $\frac{a}{T_{x+r.y}}$; Or thus, if the property of the Tontine were divided, at once, he would get the T_{x+k}^{th} part of it; therefore the equivalents, which he has for sale, now, must be the T_{x+k}^{th} part of each of the periodic divisions a , which represent the property. The sale of any one temporary survivorship dividend reversion could be effected without the sale of his right to participate in any other divisions.

15.—If 2 lives be considered, the chance of 2 lives, of equal ages x_1 , both surviving the next division, say in k years,

$$= \frac{l_{x_1+k}}{l_{x_1}} \cdot \frac{l_{x_1+k}}{l_{x_1}} = \left(\frac{l_{x_1+k}}{l_{x_1}} \right)^2$$

$$\text{The chance of both dying} = \left(1 - \frac{l_{x_1+k}}{l_{x_1}} \right)^2$$

$$\text{The chance that of two lives one or other dies} = \frac{l_{x_1+k}}{l_{x_1}} \left(1 - \frac{l_{x_1+k}}{l_{x_1}} \right)$$

If both lives be males and equal 15 and $k = 45$, the chance that one will live over and the other die before 60, $= \cdot 544 (1 - \cdot 544) = \cdot 244$ nearly, or the odds in favour of the event, that one, and one only, of two lives will die, are 61 to 189; the *relative* chance of each is of course even.

The chance of a single male, now aged x , dying between the age of $x + k_1$ and $x + k_2$ is $= \frac{l_{x+k_1} - l_{x+k_2}}{l_x}$.

Example: $x = 15$ $x + k_1 = 50$ $x + k_2 = 60$

$l_x = 34574$ $l_{x+k_1} = 23377$ $l_{x+k_2} = 18808$

Probability $= \frac{4569}{34574} = \cdot 132$ nearly, or the odds are about 33 to 217 in favour of the event.

16.—Where it is proposed to make a diminution in the cost of a share, because a life older than the minimum age is nominated to a Tontine, or if the parties were to wish to estimate at any time the present value of a member's interest in the fundamental property of the Tontine, contingent upon his being the last survivor, the calculation must include a comparison of the relative chance of survivorship which the life estimated has with the others; but the investigation would be too long to be treated of in this Appendix. It may, nevertheless, be incidentally mentioned, that in questions of *survivorship*, which is to occur in a particular order, so that the survivor may become entitled to property, the calculation is very laborious, even in the case of the order of survivorship of one out of two lives; unless their ages be equal, and the relative probabilities even.

For example: Suppose that the chance of a life aged x_1 surviving another aged x_2 be required. For each year the probability would have to be estimated of the survivorship occurring in that particular year. Let the year be that in which the life x_1 would pass from age $x_1 + k$ to $x_1 + k + 1$; then two contingencies must be considered: either the life x_2 may die between the ages $(x_2 + k)$ $(x_2 + k + 1)$, and the life x_1 complete his $(x_1 + k + 1)^{\text{th}}$ year, which chances would be calculated as in No. 15 of this note; or both the lives x_1 and x_2 may die in that same year; the life x_2 dying *before* the life x_1 ; which latter contingency may, with sufficient approximation, be considered as presenting an even chance, and measured by $\frac{1}{2} \cdot \frac{l_{x_1+k} - l_{x_1+k+1}}{l_{x_1}} \cdot \frac{l_{x_2+k} - l_{x_2+k+1}}{l_{x_2}}$. We say with sufficient approximation, because the quantity, of which $\frac{1}{2}$ is taken and treated as presenting an even chance, is so small, even in the case of questions

upon 2 lives, as not to produce much effect on the general result afforded by the measurement of the first contingency.

The present value of a survivorship Reversion, contingent upon a life x_1 surviving another x_2 , would be the aggregate of the probabilities of the event happening in each year, multiplied by corresponding powers of $(1 + i)^{-1}$.

17.—In problems involving a survivorship of one out of three or more lives, the same mode of reasoning must be adopted; but it is important to notice that the complex expression, which the investigation would then assume, may with safety be materially simplified by neglecting *altogether* those contingencies, which cannot affect the main value of the reversion, such as in the instance of the second contingency alluded to in the case of only two lives. Even the complete formula itself, when practically calculated by any existing table of mortality, could only be used by introducing tabular approximations; and it would not be difficult to show, that the neglect of unimportant contingencies, in the formula for valuing a survivorship reversion on three or more lives, would actually tend to correct the errors unavoidably created by tabular approximations.

TABLES.

TABLE I.

Shewing the *Decimal* corresponding to every Penny in the *Pound*.

<i>s. d.</i>	Deci- mal.	<i>s. d.</i>	Deci- mal.	<i>s. d.</i>	Deci- mal.	<i>s. d.</i>	Deci- mal.	<i>s. d.</i>	Deci- mal.
0 1	.004	4 1	.204	8 1	.404	12 1	.604	16 1	.804
0 2	.008	4 2	.208	8 2	.408	12 2	.608	16 2	.808
0 3	.012	4 3	.212	8 3	.412	12 3	.612	16 3	.812
0 4	.017	4 4	.217	8 4	.417	12 4	.617	16 4	.817
0 5	.021	4 5	.221	8 5	.421	12 5	.621	16 5	.821
0 6	.025	4 6	*.225	8 6	.425	12 6	.625	16 6	.825
0 7	.029	4 7	.229	8 7	.429	12 7	.629	16 7	.829
0 8	.033	4 8	.233	8 8	.433	12 8	.633	16 8	.833
0 9	.037	4 9	.237	8 9	.437	12 9	.637	16 9	.837
0 10	.042	4 10	.242	8 10	.442	12 10	.642	16 10	.842
0 11	.046	4 11	.246	8 11	.446	12 11	.646	16 11	.846
1 0	.050	5 0	.250	9 0	.450	13 0	.650	17 0	.850
1 1	.054	5 1	.254	9 1	.454	13 1	*.654	17 1	*.854
1 2	.058	5 2	.258	9 2	.458	13 2	.658	17 2	.858
1 3	.062	5 3	.262	9 3	.462	13 3	.662	17 3	.862
1 4	.067	5 4	.267	9 4	.467	13 4	.667	17 4	.867
1 5	.071	5 5	.271	9 5	.471	13 5	.671	17 5	.871
1 6	*.075	5 6	.275	9 6	.475	13 6	.675	17 6	.875
1 7	.079	5 7	.279	9 7	.479	13 7	.679	17 7	.879
1 8	.083	5 8	.283	9 8	.483	13 8	.683	17 8	.883
1 9	.087	5 9	.287	9 9	.487	13 9	.687	17 9	.887
1 10	.092	5 10	.292	9 10	.492	13 10	.692	17 10	.892
1 11	.096	5 11	.296	9 11	.496	13 11	.696	17 11	.896
2 0	.100	6 0	.300	10 0	.500	14 0	.700	18 0	.900
2 1	.104	6 1	.304	10 1	.504	14 1	.704	18 1	.904
2 2	.108	6 2	.308	10 2	.508	14 2	.708	18 2	.908
2 3	.112	6 3	.312	10 3	.512	14 3	.712	18 3	.912
2 4	.117	6 4	.317	10 4	.517	14 4	.717	18 4	.917
2 5	.121	6 5	.321	10 5	.521	14 5	.721	18 5	.921
2 6	.125	6 6	.325	10 6	*.525	14 6	.725	18 6	.925
2 7	.129	6 7	.329	10 7	.529	14 7	.729	18 7	.929
2 8	.133	6 8	.333	10 8	.533	14 8	.733	18 8	.933
2 9	.137	6 9	.337	10 9	.537	14 9	.737	18 9	.937
2 10	.142	6 10	.342	10 10	.542	14 10	.742	18 10	.942
2 11	.146	6 11	.346	10 11	.546	14 11	.746	18 11	.946
3 0	.150	7 0	.350	11 0	.550	15 0	.750	19 0	.950
3 1	.154	7 1	.354	11 1	.554	15 1	*.754	19 1	*.954
3 2	.158	7 2	.358	11 2	.558	15 2	.758	19 2	.958
3 3	.162	7 3	.362	11 3	.562	15 3	.762	19 3	.962
3 4	.167	7 4	.367	11 4	.567	15 4	.767	19 4	.967
3 5	.171	7 5	.371	11 5	.571	15 5	.771	19 5	.971
3 6	.175	7 6	*.375	11 6	.575	15 6	.775	19 6	.975
3 7	.179	7 7	.379	11 7	.579	15 7	.779	19 7	.979
3 8	.183	7 8	.383	11 8	.583	15 8	.783	19 8	.983
3 9	.187	7 9	.387	11 9	.587	15 9	.787	19 9	.987
3 10	.192	7 10	.392	11 10	.592	15 10	.792	19 10	.992
3 11	.196	7 11	.396	11 11	.596	15 11	.796	19 11	.996
4 0	.200	8 0	.400	12 0	.600	16 0	.800	20 0	1.000

* *Example*.—The value of the Decimal .075, is 1*s.* 6*d.*—.225, is 4*s.* 6*d.*—.375, is 7*s.* 6*d.*—.525, is 10*s.* 6*d.*—.654, is 13*s.* 1*d.*—.754, is 15*s.* 1*d.*—.854, is 17*s.* 1*d.*—.954, is 19*s.* 1*d.*

TABLE II.

(A.) *Shewing the sum per Pound to which a Rate of Interest per cent. is equivalent.*

	s.	d.	
2 per cent. interest is equal to nearly	0	5	in the pound.
$2\frac{1}{2}$ " "	exactly	0	6 "
3 " "	nearly	0	7 "
$3\frac{1}{2}$ " "	"	0	$8\frac{1}{2}$ "
4 " "	"	0	$9\frac{3}{4}$ "
$4\frac{1}{2}$ " "	"	0	11 "
5 " "	exactly	1	0 "
$5\frac{1}{2}$ " "	nearly	1	$1\frac{1}{4}$ "
6 " "	"	1	$2\frac{1}{2}$ "
7 " "	"	1	5 "
8 " "	"	1	$7\frac{1}{4}$ "
9 " "	"	1	$9\frac{3}{4}$ "
10 " "	exactly	2	0 "

(B.) *To calculate the Interest for One Year on any sum.*

If the rate be } multiply the sum } and the product is the
2 per cent. } by .02 or $\frac{1}{50}$ } interest required.

If $2\frac{1}{2}$ "	by .025 or $\frac{1}{40}$	" "
If 3 "	by .03 or $\frac{3}{100}$	" "
If $3\frac{1}{2}$ "	by .035 or $\frac{7}{200}$	" "
If 4 "	by .04 or $\frac{1}{25}$	" "
If $4\frac{1}{2}$ "	by .045 or $\frac{9}{200}$	" "
If 5 "	by .05 or $\frac{1}{20}$	" "
If 6 "	by .06 or $\frac{3}{50}$	" "
If 7 "	by .07 or $\frac{7}{100}$	" "
If 8 "	by .08 or $\frac{2}{25}$	" "
If 9 "	by .09 or $\frac{9}{100}$	" "
If 10 "	by .1 or $\frac{1}{10}$	" "

REMARK.—To perform the above, it will be remembered that to multiply a quantity by a fraction it must be first multiplied by the numerator, and then the result divided by the denominator of the fraction. The division by 100 can be effected by dividing twice by 10. Similarly the other divisors can be separated, and the quotient obtained by successive divisions.

Example.—To find the interest for one year, at $3\frac{1}{2}$ per cent., on £19. 12s. 8d.

$$\begin{array}{r}
 \text{£ } 19. \ 12. \ 8 \\
 \quad \quad \quad 7 \\
 \hline
 2) 137. \ 8. \ 8 \\
 \hline
 10) 68. \ 14. \ 4 \\
 \hline
 10) 6. \ 17. \ 5\frac{2}{10}
 \end{array}$$

Or the Interest required is 13s. $8\frac{2}{10}$
13s. 9d. nearly.

Table III. can, by means of the following Formulæ, be made to give results generally required from Tables of Discount or Annuities.

1. Table VIII. The *present value* of £1 due at the end of any number of years } is equal to { Unity divided by the *Amount*, *Table III.*, of £1 at the end of the same number of years.
2. Table IX. The *Amount* of an *Annuity* of £1 in any number of years } is equal to { The quotient (the *Amount*, *Table III.*, of a pound in the same time, less divided by (1 + the rate of interest per pound) involved in the calculation.
3. Table X. The *present value* of an *Annuity* of £1 for any number of years } is equal to { The quotient of unity divided by the *value* of a pound, (due at the end of the same time) divided by the rate of interest per pound.*

4. Tables IX and X may be calculated from each other, if either is known by the property. (*Art. 33 Appendix*).

$$\text{that } \frac{1}{\text{Present Value of an Annuity.}} \text{ less } \frac{1}{\text{Amount of an Annuity.}} \left\{ \begin{array}{l} \text{is equal to} \\ \text{the rate of interest per pound.} \end{array} \right.$$

* [The present value required for the division being found from *Table III.* by the formula of (1).]

TABLE III.
** Showing the Amount to which £1 Principal will increase at various Rates of Compound yearly Interest. (See Table VI.)*

At the end of Years.	3 per cent.	3½ per cent.	4 per cent.	4½ per cent.	4½ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	1.0300	1.0325	1.0400	1.0425	1.0450	1.0500	1.0600	1.0700	1.0800
2	1.0609	1.0712	1.0816	1.0868	1.0920	1.1025	1.1236	1.1449	1.1664
3	1.0927	1.1087	1.1248	1.1329	1.1411	1.1576	1.1910	1.2250	1.2597
4	1.1255	1.1364	1.1475	1.1586	1.1611	1.1765	1.2224	1.2677	1.3130
5	1.1592	1.1734	1.1876	1.2021	1.2061	1.2262	1.2824	1.3377	1.3930
6	1.1940	1.2115	1.2292	1.2471	1.2522	1.2769	1.3440	1.4092	1.4743
7	1.2298	1.2509	1.2722	1.2939	1.3008	1.3300	1.4080	1.4822	1.5563
8	1.2667	1.2915	1.3168	1.3424	1.3501	1.3837	1.4716	1.5558	1.6399
9	1.3047	1.3335	1.3628	1.3928	1.4021	1.4400	1.5384	1.6326	1.7267
10	1.3439	1.3768	1.4105	1.4450	1.4552	1.4970	1.6064	1.7106	1.8147
11	1.3842	1.4216	1.4599	1.4992	1.5103	1.5628	1.6822	1.8016	1.9209
12	1.4257	1.4678	1.5110	1.5554	1.5672	1.6308	1.7602	1.8896	2.0189
13	1.4685	1.5155	1.5639	1.6137	1.6261	1.6996	1.8390	1.9684	2.0977
14	1.5125	1.5648	1.6186	1.6743	1.6872	1.7708	1.9202	2.0496	2.1789
15	1.5579	1.6156	1.6753	1.7370	1.7503	1.8438	1.9932	2.1226	2.2519
16	1.6047	1.6681	1.7339	1.8022	1.8159	1.9194	2.0688	2.1982	2.3275
17	1.6528	1.7223	1.7946	1.8698	1.8839	1.9974	2.1468	2.2762	2.4055
18	1.7024	1.7783	1.8574	1.9399	1.9543	2.0778	2.2272	2.3566	2.4859
19	1.7535	1.8361	1.9225	2.0126	2.0272	2.1507	2.3001	2.4295	2.5588
20	1.8061	1.8958	1.9897	2.0881	2.1029	2.2264	2.3758	2.5052	2.6345
21	1.8602	1.9574	2.0594	2.1664	2.1813	2.3048	2.4542	2.5836	2.7129
22	1.9161	2.0210	2.1315	2.2477	2.2627	2.3862	2.5356	2.6650	2.7943
23	1.9735	2.0867	2.2061	2.3319	2.3470	2.4705	2.6199	2.7493	2.8786
24	2.0327	2.1545	2.2833	2.4194	2.4346	2.5581	2.7075	2.8369	2.9662
25	2.0937	2.2245	2.3632	2.5101	2.5253	2.6488	2.7982	2.9276	3.0569

* See Art. 20, page 15, also Section 2, Appendix, for the extension of this Table to any number of years beyond 25.

TABLE IV.

Shewing the Rates of Interest payable only once a year, which are equivalent to nominal annual Rates of Interest actually paid at frequent intervals in each year. Art. 5, Appendix.

Nominal annual rate per cent.	Real yearly interest, to which the nominal rates are equivalent when paid :—				
	Yearly.	Half-yearly.	Quarterly.	Monthly.	Momently.
3 per cent.	£. s. d. 3 0 0	£. s. d. 3 0 5½	£. s. d. 3 0 8½	£. s. d. 3 0 10	£. s. d. 3 0 11
4 per cent.	4 0 0	4 0 9¾	4 1 2½	4 1 6	4 1 7¾
5 per cent.	5 0 0	*5 1 3	5 1 10¾	5 2 4	5 2 6½
6 per cent.	6 0 0	6 1 9¾	6 2 8¾	6 3 4	6 3 8½
7 per cent.	7 0 0	7 2 5½	7 3 8¾	7 4 7	7 5 0½
8 per cent.	8 0 0	8 3 2½	8 4 10½	8 6 0	8 6 7

* *Example.*—If a person receives interest half-yearly, after the nominal annual rate of 5 per cent., the actual interest derived by him by one year's investment is £5. 1s. 3d.

TABLE V.

Shewing the nominal annual Rates of Interest paid momently, which are equivalent to rates paid at the end of each year. Art. 6, Appendix.

Yearly rate.	Corresponding momentaneous rate.	Yearly rate.	Corresponding momentaneous rate.
	£. s. d.		£. s. d.
2 per cent.	£1.9802 or 1 19 7½	7 per cent.	£6.7658 or 6 15 4
3 „	2.9558 2 19 1½	8 „	7.6791 7 13 11½
4 „	3.9220 3 18 5½	9 „	8.6177 8 12 4½
5 „	4.8790 *4 17 7	10 „	9.5310 9 10 7½
6 „	5.8268 5 16 6½		

* *Example.*—The amount to which a sum of money will accumulate in any number of years at yearly interest 5 per cent. is the same as the amount to which it would accumulate at momentaneous interest, after the nominal annual rate of 4l. 17s. 7d. per cent.

TABLE VI.

Shewing the Amount to which £1 will increase at Compound Interest, according as it is paid yearly, half-yearly, quarterly, or momentarily. [See Table III.]

Nominal rate of Interest.	Payable.	The Amount of £1 in			
		1 Year.	5 Years.	25 Years.	50 Years.
3 per cent.	yearly	1.03000	1.15927	2.09378	4.38391
	half-yearly	1.03022	1.16054	2.10524	4.43204
	quarterly	1.03034	1.16119	2.11108	4.45667
	momently	1.03045	1.16183	2.11700	4.48169
4 per cent.	yearly	1.04000	1.21665	2.66584	7.10668
	half-yearly	1.04040	1.21899	2.69159	7.24465
	quarterly	1.04060	1.22019	2.70481	7.31602
	momently	1.04081	1.22140	2.71828	7.38906
5 per cent.	yearly	1.05000	1.27628	3.38634	11.46740
	half-yearly	1.05062	1.28008	3.43711	11.81372
	quarterly	1.05095	1.28204	3.46340	11.99617
	momently	1.05127	1.28402	3.49034	12.18249
6 per cent.	yearly	1.06000	1.33823	4.29187	18.42015
	half-yearly	1.06090	1.34392	4.38391	19.21863
	quarterly	1.06136	1.34685	4.43204	19.64303
	momently	1.06184	1.34986	4.48169	20.08553
7 per cent.	yearly	1.07000	1.40255	5.42743	29.45703
	half-yearly	1.07122	1.41060	5.58493	31.19141
	quarterly	1.07186	1.41478	5.66816	32.12799
	momently	1.07251	1.41907	5.75460	33.11645
8 per cent.	yearly	1.08000	1.46933	6.84847	46.90161
	half-yearly	1.08160	1.48024	7.10668	50.50495
	quarterly	1.08243	1.48595	7.24465	52.48490
	momently	1.08329	1.49182	7.38906	54.59815

TABLE VII.

Time in which Money will double itself at Simple or Compound yearly Interest. (See Arts. 12—15, in the Appendix for the theorem relative to the number 70.)

Rate Percent.		At Simple Interest.	At Compound Interest.	
		Years.	Years.	Years. Days.
2	£1 or any other sum will double itself in	50.0000	35.00278878	= 35 2
2½		40.0000	28.07103453	= 28 26
3		33.3333	23.44977225	= 23 165
3½		28.5714	20.14879168	= 20 55
4		25.0000	17.67298769	= 17 246
4½		22.2222	15.74730184	= 15 272
5		20.0000	14.20669908	= 14 76
6		16.6666	11.89566105	= 11 327
7		14.2857	10.24476835	= 10 90
8		12.5000	9.00646834	= 9 3
9		11.1111	8.04323173	= 8 16
10		10.0000	7.27254090	= 7 100

TABLE VIII.

Showing the present Value of £1 payable at the end of any number of Years, at various Rates of Interest.

This Table will serve to determine the *present value* of shares in a Building Society, or the sum which must be given at once to obtain a *paid up share*, which is to be received at the end of a specified number of years.

Years.	3 per cent.	3 $\frac{1}{4}$ per cent.	3 $\frac{1}{2}$ per cent.	3 $\frac{3}{4}$ per cent.	4 per cent.	4 $\frac{1}{4}$ per cent.	4 $\frac{1}{2}$ per cent.	4 $\frac{3}{4}$ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	.9708	.9685	.9661	.9638	.9615	.9592	.9569	.9546	.9523	.9433	.9345	.9259
2	.9425	.9380	.9335	.9290	.9245	.9201	.9157	.9113	.9070	.8899	.8734	.8573
3	.9151	.9085	.9019	.8954	.8889	.8826	.8762	.8700	.8638	.8396	.8162	.7938
4	.8884	.8799	.8714	.8630	.8548	.8466	.8385	.8305	.8227	.7920	.7628	.7350
5	.8626	.8522	.8419	.8318	.8219	.8121	.8024	.7929	.7835	.7472	.7129	.6805
6	.8374	.8253	.8135	.8018	.7903	.7790	.7678	.7569	.7462	.7049	.6663	.6301
7	.8130	.7994	.7859	.7728	.7599	.7472	.7348	.7226	.7106	.6650	.6227	.5834
8	.7894	.7742	.7594	.7448	.7305	.7167	.7031	.6898	.6768	.6274	.5820	.5402
9	.7664	.7498	.7337	.7179	.7025	.6875	.6729	.6585	.6448	.5918	.5439	.5002
10	.7440	.7262	.7089	.6920	.6755	.6595	.6439	.6287	*.6139	.5683	.5083	.4631
11	.7224	.7034	.6849	.6670	.6495	.6326	.6161	.6002	.5846	.5267	.4750	.4288
12	.7013	.6812	.6617	.6428	.6245	.6068	.5896	.5729	.5568	.4969	.4440	.3971
13	.6809	.6598	.6394	.6196	.6005	.5821	.5642	.5470	.5303	.4688	.4149	.3676
14	.6611	.6390	.6177	.5972	.5774	.5583	.5399	.5222	.5050	.4423	.3878	.3404
15	.6418	.6189	.5968	.5756	.5552	.5356	.5167	.4985	.4810	.4172	.3624	.3152

* *Example.*—If a member of a Building Society desire to purchase by a single payment a share whose amount is £100, to be received at the end of 10 years, and the rate of interest be 5 per cent, he must pay £61.39 or £61. 7s. 11d. for the same; a modification of course being made in the case of *monthly* payments.

[Refer to the Remarks No. 1, appended to Table III, for any time beyond 25 years.]

TABLE IX.
[See Remarks, No. 3, appended to Table III.]
Shewing the Amount to which an Annuity of £1, paid at the end of each year, will accumulate at Compound Interest.
This Table will serve to determine the yearly subscription requisite to purchase an investing share in a Building Society.

Years.	3 per cent.	3½ per cent.	3¾ per cent.	4 per cent.	4½ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.	9 per cent.	10 per cent.
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0300	2.0325	2.0350	2.0400	2.0450	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000
3	3.0900	3.0955	3.1010	3.1130	3.1210	3.1285	3.1530	3.2140	3.2404	3.2701	3.3100
4	4.1836	4.1992	4.2149	4.2404	4.2781	4.3101	4.3740	4.4360	4.5001	4.5731	4.6410
5	5.3091	5.3357	5.3624	5.3993	5.4103	5.4707	5.6266	5.7607	5.8903	6.0147	6.1061
6	6.4684	6.5091	6.5501	6.5914	6.6329	6.7108	6.8610	7.1532	7.3350	7.5253	7.7164
7	7.6624	7.7206	7.7794	7.8386	8.0101	8.1420	8.3024	8.6540	8.9228	9.2904	9.6671
8	8.8923	8.9718	9.0516	9.1325	9.2142	9.3960	9.6074	10.2504	10.6303	11.0204	11.4104
9	10.1591	10.2631	10.3684	10.4750	10.5827	10.8021	11.4013	11.9770	12.4876	13.0210	13.5704
10	11.4638	11.5967	11.7313	11.8678	12.0061	12.2942	13.1807	13.8104	14.4905	15.1920	15.9374
11	12.8077	12.9736	13.1419	13.3128	13.4863	14.2807	14.9710	15.7836	16.6164	17.4802	18.3811
12	14.1920	14.3952	14.6019	14.8121	15.0258	15.4040	16.0171	16.8660	17.7604	18.7007	19.6842
13	15.6177	15.8631	16.1130	16.3675	16.6268	17.1020	18.8821	20.1401	21.4052	22.7533	24.1927
14	17.0863	17.3786	17.6769	17.9813	18.2910	19.5040	21.0150	22.5504	24.2140	25.9101	27.6740
15	18.5989	18.9434	19.2956	19.6566	20.0235	21.5785	23.2760	25.1200	27.1021	29.3000	31.7724

[NOTE.—The above Table will also serve to determine the amount of an annuity paid at the beginning of each year.

For the amount of an annuity for n years paid } = } the amount of an annuity for $(n + 1)$ years
at the beginning of each year. } from above table 1.

* Example.—The amount of an Annuity of £1 at 5 per cent. for 10 years paid at the beginning of each year = £14.2007 £1.
= £13.2007.

TABLE X.
[See Remarks, No. 3., appended to Table III.]
Shewing the present Value of an Annuity of £1, paid at the end of each Year.

Years.	3 per cent.	3 $\frac{1}{4}$ per cent.	3 $\frac{1}{2}$ per cent.	3 $\frac{3}{4}$ per cent.	4 per cent.	4 $\frac{1}{2}$ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	.9708	.9685	.9661	.9638	.9615	.9569	.9523	.9433	.9345	.9259
2	1.9134	1.9065	1.8996	1.8928	1.8860	1.8726	1.8594	1.8333	1.8080	1.7832
3	2.8286	2.8150	2.8016	2.7883	2.7750	2.7489	2.7232	2.6730	2.6243	2.5770
4	3.7170	3.6949	3.6730	3.6513	3.6298	3.5875	3.5459	3.4651	3.3872	3.3121
5	4.5797	4.5471	4.5150	4.4832	4.4518	4.3899	4.3294	4.2123	4.1001	3.9927
6	5.4171	5.3725	5.3285	5.2850	5.2421	5.1578	5.0756	4.9173	4.7685	4.6228
7	6.2302	6.1720	6.1145	6.0578	6.0020	5.8927	5.7863	5.5823	5.3892	5.2063
8	7.0196	6.9462	6.8739	6.8027	6.7327	6.5958	6.4632	6.2097	5.9712	5.7466
9	7.7861	7.6961	7.6076	7.5207	7.4353	7.2687	*7.1078	6.8016	6.5152	6.2468
10	8.5302	8.4223	8.3166	8.2127	8.1108	7.9127	7.7177	7.3600	7.0235	6.7100
11	9.2526	9.1258	9.0015	8.8797	8.7604	8.5269	8.3064	7.8868	7.4986	7.1389
12	9.9540	9.8070	9.6633	9.5226	9.3850	9.1185	8.8632	8.3838	7.9426	7.5360
13	10.6349	10.4669	10.3027	10.1423	9.9866	9.6828	9.3935	8.8526	8.3576	7.9037
14	11.2960	11.1059	10.9205	10.7396	10.5631	10.2228	9.8989	9.2949	8.7454	8.2442
15	11.9379	11.7248	11.5174	11.3152	11.1183	10.7395	10.3796	9.7122	9.1079	8.5594

[NOTE.—The above Table will serve to determine the present value of an Annuity paid at the *beginning* of each year,

For, the present value of an annuity of £1, paid at the $\left\{ \begin{array}{l} \text{the present value of an annuity} \\ \text{beginning of each year, for } n \text{ years} \end{array} \right\} = \left\{ \begin{array}{l} \text{for } (n-1) \text{ years} + 1. \end{array} \right.$

* *Example.*—The present value at 5 per cent. of £1 a year paid at the beginning of each year for ten years = £7.1078 + £1.
= £8.1078]

TABLE XI.

Showing the Annuity which £1 will purchase for a given number of Years.

This Table will serve to determine the Annuity to be paid by a borrowing member of a Building Society in repayment of a given advance.

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.	9 per cent.	10 per cent.
1	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000
2	.6226	.6302	.6378	.6454	.6531	.6608	.6685	.6762
3	.3535	.3603	.3672	.3741	.3811	.3880	.3951	.4021
4	.2690	.2755	.2820	.2886	.2952	.3019	.3087	.3155
5	.2184	.2246	.2310	.2374	.2439	.2505	.2571	.2638
6	.1846	.1908	.1970	.2034	.2098	.2163	.2229	.2296
7	.1605	.1666	.1728	.1791	.1856	.1921	.1987	.2054
8	.1425	.1485	.1547	.1610	.1675	.1740	.1807	.1874
9	.1284	.1345	.1407	.1470	.1535	.1601	.1668	.1736
10	.1172	.1233	.1295	.1359	*.1424	.1490	.1558	.1627
11	.1081	.1141	.1204	.1268	.1334	.1401	.1469	.1540
12	.1005	.1066	.1128	.1193	.1259	.1327	.1397	.1468
13	.0940	.1001	.1065	.1130	.1197	.1265	.1336	.1408
14	.0885	.0947	.1010	.1076	.1143	.1213	.1284	.1358
15	.0837	.0899	.0963	.1030	.1098	.1168	.1241	.1315

* *Example.*—If a member borrow £100 for 10 years to be repaid by equal instalments, including principal and interest, at 7 per cent., in that time, he must pay £14.24 or nearly £14. 5s. a year in repayment for the same.

From this Table may, also, be calculated the annual sinking fund to accumulate to £100 in any number of years. Ex: The sinking fund to produce £100 in 12 years at 5 per cent. is equal to £11.28, and less the interest, or to £6.28, which is £6. 5s. 8d. nearly. (See also Art. 33 Appendix).

• TABLE XII.

Extract from the Tables of Hyperbolic Logarithms.

Number.	Logarithms.	Number.	Logarithms.
1.01	.0099503	2.00	.6931472
1.02	.0198026	3.00	1.0986123
1.03	.0295588	4.00	1.3862943
1.04	.0392207	5.00	1.6094379
1.05	.0487902	6.00	1.7917594
1.06	.0582689	7.00	1.9459101
1.07	.0676586	8.00	2.0794415
1.08	.0769610	9.00	2.1972245
1.09	.0861777	10.00	2.3025851
1.10	.0953102		

Rem.—Hyperbolic Logarithms can be deduced from the ordinary tables of Logarithms to the base 10, by multiplying the latter by Log. 10 or 2.302851.

* See Callet's Logarithms.—*Firmin Didot, Paris.*

TABLE XIII.

Extract from the English Life Table, 5th Report of the Registrar General.

[Interpolated by applying the differential Method to the Logarithms of the probability of living a year; in two series,—the first extending from 15 to 55 in the Table of Males and from 15 to 54 in the Table of Females, the second series from 56 and 55 to the end of life.]

Age.	Living.	Males.	Females.	Age.	Living.	Males.	Females.
0	100,000	51,274	48,726	35	57,173	28,868	28,305
1	85,389	43,104	42,285	40	53,824	27,145	26,679
2	80,102	40,388	39,714	45	50,300	25,311	24,989
3	77,392	39,018	38,374	50	46,620	23,377	23,243
4	75,539	38,064	37,475	55	42,812	21,361	21,451
5	74,201	37,385	36,816	60	37,998	18,808	19,190
6	73,154	36,843	36,311	65	31,854	15,590	16,264
7	72,320	36,411	35,909	70	24,532	11,824	12,708
8	71,644	36,065	35,579	75	16,659	7,868	8,791
9	71,081	35,787	35,294	80	9,382	4,316	5,066
10	70,612	35,564	35,048	85	4,010	1,786	2,224
15	68,628	34,574	34,054	90	1,150	492	658
20	66,061	33,324	32,737	95	188	77	111
25	63,296	31,958	31,338	100	13	5	8
30	60,333	30,473	29,860	105	.3	.1	.2

TABLE XIV.

Extract from the Tables of Rates of Mortality at Northampton, Carlisle, the Equitable Insurance Office, and according to the Observations of Des Parcieux.

Age.	Northampton	Carlisle.	Des Parcieux.	Equitable.	Age.	Northampton	Carlisle	Des Parcieux.	Equitable.
	Living.	Living.	Living.	Living.		Living.	Living.	Living.	Living.
0	11650	10000			35	4010	5362	694	2374
1	8650	8461			40	3635	5075	657	2236
2	7283	7779			45	3248	4727	622	2093
3	6781	7274	1000		50	2857	4397	581	1937
4	6446	6998	970		55	2448	4073	526	1744
5	6249	6797	948		60	2038	3643	463	1524
6	6065	6676	930		65	1632	3018	395	1288
7	5925	6594	915		70	1232	2401	310	1028
8	5815	6536	902		75	832	1675	211	752
9	5735	6493	890		80	469	953	118	480
10	5675	6460	880	2844	85	186	445	48	224
15	5423	6300	848	2785	90	46	142	11	65
20	5132	6090	814	2705	95	4	30	0	9
25	4760	5879	774	2611	100		9		
30	4385	5642	734	2501					

TABLE XV.

Present Values of Annuities on Single Lives according to the Carlisle Table of Mortality.

(See Deposit Life Assurance Formulæ in Section 4, Appendix.)

Age.	3 per cent.	4 per cent.	Age.	3 per cent.	4 per cent.
0	17.320	14.28164	35	18.433	16.04123
1	20.085	16.55455	40	17.143	15.07363
2	21.501	17.72616	45	15.863	14.10460
3	22.683	18.71508	50	14.303	12.86902
4	23.285	19.23133	55	12.408	11.29961
5	23.693	19.59203	60	0.491	9.66333
6	23.846	19.74502	65	8.917	8.30719
7	23.867	19.79019	70	7.123	6.70936
8	23.801	19.76443	75	5.512	5.23901
9	23.677	19.69114	80	4.365	4.18289
10	23.512	19.58339	85	3.229	3.11515
15	22.582	18.95534	90	2.499	2.41621
20	21.694	18.36170	95	2.757	2.67433
25	20.665	17.64486	100	1.683	1.65282
30	19.556	16.85215			

THE END.

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NOTICE.

THE necessary Forms for investigating into the affairs of Benefit Building and other Societies, and for *converting* terminating Associations into Permanent Societies, can be obtained on application at 3, PARLIAMENT STREET, LONDON.

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APPENDIX

ON THE

VALUATION OF POST OBITS

AND

CONTINGENT REVERSIONS OR LEGACIES.

With some simple new Formulæ and Tables.



By Life Annuities.

Art. 1.—Frequent complaints are made of the excessive amounts that are charged by way of *Post Obits* on property, in consideration of the payment of a sum in present money or of Life Annuities granted to the lives entitled to the property in Reversion. These complaints are particularly frequent (and generally with justice) when the parties concerned are private individuals, not conversant with the principles of calculation involved, or when erroneous formulæ are used by Actuaries who have no experience in dealing with such questions. We have consequently thought that the annexed Tables might be useful in enabling Solicitors and others to ascertain the fair amount for a Post Obit, or charge to be made on *Contingent Reversionary Legacies* or property, in the most general case of two lives, where a present annuity is *proposed* to be granted to *one life*, in consideration of a *Post Obit*, contingent on its surviving another, and provision is made for the annual cost of an Assurance in case of previous death. Where more than two lives are involved, the Tables would be too extensive for convenient publication.

2.—The subject has become more especially interesting of late,

*

through the recent actions of *T. v. the H. and P. of W. Assurance Societies* in the Court of Queen's Bench, where the Plaintiff claimed on an Assurance connected with a Post Obit Bond ; and the following explanation of the cases may be serviceable.

3.—The Post Obit Bond in question was given for £14,000, to be paid by a life aged 35, in the event of his surviving another aged 74, in consideration of receiving, during the joint existence of the two lives, an annuity of £330 a year. The Plaintiff, having submitted a case to an Actuary, effected, it is said, assurances for £14,000 on the younger life, at an annual premium of from £4. 15s. to £5 per cent., costing him therefore, in the aggregate, nearly £700 a year.

4.—Various pleas were raised by the Companies resisting payment, one of which was, that the sum assured exceeded greatly the *legal assurable* interest which the Plaintiff had in the life. This one plea is supported by an examination of the case, submitted to the Actuary referred to, which was as follows :—

“What amount should a Post Obit be for, to be paid by a gentleman aged 35, if he outlives his father, aged 74 ?

“The consideration to be an annual payment of £330, together with the necessary insurance on the younger life, which can be done at 5 per cent., he not being a very good one ; the old life to be calculated to live ten years.”

5.—The Actuary's opinion was as follows :—

“Assuming that the older life will live ten years, and that the younger will survive the elder, I am of opinion that the amount of the Post Obit, to cover the necessary insurance, should not be less than £12,832.”

6.—The above answer being assumed as correct, the Plaintiff would not have been far out in effecting his Assurances for £14,000, and in requiring a Post Obit for that amount.

But, in the preceding case, two arbitrary suppositions were laid down as conditions of the question :—

1st. *That the older life would live ten years certain.*

2nd. *That the younger life would certainly survive him ;*

and such assumptions are constantly being made, to the injury of property mortgaged for Post Obits.

7.—On these assumptions the calculations would stand thus (treating the Annuities, for simplicity, as Annuities *due*, and interest at five per cent.) :—

Let A = Accumulation of an Annuity of £1, paid at the beginning of the year, for ten years certain, at 5 per cent. interest ;

a = Annuity paid = £330 ;

O = Post Obit :

then O . (.05) = Annual premium paid by Assurer :

$$\therefore \{ 330 + O \cdot (.05) \} \cdot A = O$$

$$\begin{aligned} \therefore O &= \frac{A \times 330}{1 - A \cdot (.05)} \quad \dots \dots (1)^* \\ &= \frac{13 \cdot 207 \times 330}{1 - (13 \cdot 207 \times .05)} \\ &= £12,832 \text{ nearly.} \end{aligned}$$

The preceding assumptions, however, are erroneous, as, by the Carlisle Law of Mortality, the joint existence of two lives, aged 35 and 74, is only worth, at five per cent., 5·881, or less than six years' purchase.

8.—The case would have been correctly stated thus :—

“What amount should a Post Obit be for, to be paid by a gentleman, aged 35, if he survive his father, aged 74 ?

“The consideration to be an annual payment of £330, together with the necessary Insurance on the younger life, the premium for which may be taken at £5 per cent. per annum.”

9.—The correct amount would then be obtainable thus by the ordinary mode of calculation :—

Let a = Annuity due, or payable in advance each year to x, during the joint existence of two lives, aged x, y, for a Post Obit O, to be received if x survive y ;

A = Accumulated amount, with interest (by the end of the year when one has died), of £1 a year, payable in advance during the joint existence of x, y,

* [See Table 9, page 305, *Treatise on Industrial Investment and Emigration*, (taking amount for eleven years, minus £1).]

receivable in the event of *delay occurring* in the settlement by the end of the year that one life dies ; and although such delay would not in general arise if the *assured life die first*, it might be the case if the *older* die first, and there be delay in the younger coming into the estate. This suggests the propriety of adding some margin for the expenses that may be incurred by the purchaser in the recovery of the amount of his Post Obit.

16.—If, after n years have elapsed, the holder of a Post Obit, O , desire to sell it, the value would be

$$\begin{aligned} &= O (\pi_{x+n, y+n} - \pi_{x, y}) \cdot a_{x+n, y+n} \\ &= O \left(1 - \frac{a_{x+n, y+n}}{a_{x, y}} \right) \cdot \cdot \cdot \cdot \cdot \cdot (5) \end{aligned}$$

It may be remarked incidentally, that the coefficient of O is a neat formula for the *value of a Policy*.

year. It is an objection to existing works on Life Contingencies, that this analogy is disregarded. By way of illustration (see our Treatise on Copyholds):—

If α_x = Value of Annuity *due* on life x ; using the Greek letter Alpha.

α_∞ = Value of a perpetuity due, or an Annuity for ever;

and S_x = Net single premium for Assurance, or present value of £1 receivable at death, of life x :—

$$\therefore d = \frac{i}{1+i} = \frac{1}{a_\infty} \cdot \cdot \cdot \cdot \cdot \cdot (1)$$

$$\alpha_x = a_\infty (1 - S_x) \cdot \cdot \cdot \cdot \cdot \cdot (2)$$

$$= \frac{1}{d + \pi_x} \cdot \cdot \cdot \cdot \cdot \cdot (3)$$

A_x = amount of annual premium of £1, by end of year after death of x .

$$= \frac{1}{\pi_x} \cdot \cdot \cdot \cdot \cdot \cdot (4)$$

$$d = \frac{1}{\alpha_x} - \frac{1}{A_x} \cdot \cdot \cdot \cdot \cdot \cdot (5)$$

$$\therefore \Delta \left(\frac{1}{\alpha_x} \right) = \Delta \left(\frac{1}{A_x} \right) \cdot \cdot \cdot \cdot \cdot \cdot (6)$$

$$S_x = 1 - \frac{\alpha_x}{a_\infty} \cdot \cdot \cdot \cdot \cdot \cdot (7)$$

$$= 1 - d \cdot \alpha_x \cdot \cdot \cdot \cdot \cdot \cdot (8)$$

$$= \frac{\pi_x}{d + \pi_x} \cdot \cdot \cdot \cdot \cdot \cdot (9)$$

$$\pi_x = \frac{d \cdot S_x}{1 - S_x} \cdot \cdot \cdot \cdot \cdot \cdot (10)$$

$$= \frac{1}{\alpha_x} - \frac{1}{a_\infty} \cdot \cdot \cdot \cdot \cdot \cdot (11)$$

$$= \frac{1}{\alpha_x} - d \cdot \cdot \cdot \cdot \cdot \cdot (12)]$$

Art. 17.

TABLE for calculating the Annuity to be granted in purchase of a Post-Obit Bond or Contingent Reversionary Legacy of £100, payable on the contingency of one life (*A*) surviving another (*B*).

(The Annuity is the difference between Columns 1 and 2.)

		Column 1.						Column 2.					
Ages.		Gross Annual Payment to purchase a Post Obbit or Contingent Reversionary Legacy of £100, receivable if <i>A</i> survive <i>B</i> , inclusive of cost of insuring the chance of <i>A</i> dying before <i>B</i> , allowing interest at						Deduction to be made for rate of insurance of £100, payable should <i>A</i> die before <i>B</i> .					
A.	B.	5 per cent.			6 per cent.			7 per cent.			Office.		
		£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
20	20	2	0	8	1	18	3	1	16	3	1	8	7
	25	2	3	8	2	1	2	1	19	2	1	7	8
	30	2	7	6	2	5	0	2	2	10	1	6	9
	35	2	11	10	2	9	0	2	6	7	1	5	10
	40	2	17	11	2	14	10	2	12	2	1	4	11
	45	3	4	8	3	1	1	2	18	0	1	4	1
	50	3	15	5	3	11	5	3	7	10	1	3	2
	55	4	13	1	4	9	0	4	5	4	1	2	4
	60	5	17	9	5	13	6	5	9	8	1	1	6
	65	7	4	0	6	19	5	6	15	2	1	0	8
	70	9	8	0	9	3	3	8	19	0	0	19	9
75	12	9	7	12	4	6	11	19	9	0	19	0	
80	15	13	9	15	8	5	15	3	5	0	18	3	
85	20	13	5	20	8	2	20	3	4				
25	25	2	6	7	2	4	1	2	1	11	1	12	4
	30	2	10	4	2	7	8	2	5	5	1	11	2
	35	2	14	5	2	11	7	2	9	1	1	10	0
	40	3	0	4	2	17	3	2	14	7	1	8	10
	45	3	6	11	3	3	6	3	0	5	1	7	8
	50	3	17	6	3	13	7	3	10	1	1	6	8
	55	4	15	2	4	11	1	4	7	5	1	5	8
	60	5	19	10	5	15	6	5	11	7	1	4	9
	65	7	5	10	7	1	3	6	17	1	1	3	10
	70	9	9	9	9	5	0	9	0	8	1	2	9
	75	12	10	11	12	6	2	12	1	11	1	1	9
80	15	15	1	15	9	11	15	5	1	1	0	10	
85	20	14	10	20	9	6	20	4	8				

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if <i>A</i> survive <i>B</i> , inclusive of cost of insuring the chance of <i>A</i> dying before <i>B</i> , allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should <i>A</i> die before <i>B</i> .
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
30	30	2 13 10	2 11 1	2 8 10	1 16 9
	35	2 17 8	2 14 10	2 12 5	1 15 3
	40	3 3 5	3 0 4	2 17 9	1 13 10
	45	3 9 9	3 6 4	3 3 3	1 12 4
	50	4 0 0	3 16 4	3 12 10	1 10 11
	55	4 17 8	4 13 9	4 10 1	1 9 8
	60	6 2 3	5 18 1	5 14 5	1 8 7
	65	7 8 4	7 3 10	6 19 9	1 7 7
	70	9 12 5	9 7 8	9 3 4	1 6 8
	75	12 13 6	12 8 11	12 4 8	1 5 8
	80	15 17 9	15 12 7	15 7 11	1 4 9
	85	20 17 7	20 12 3	20 7 5	
35	35	3 1 3	2 18 3	2 15 8	2 1 5
	40	3 6 7	3 3 6	3 0 9	1 19 6
	45	3 12 8	3 9 2	3 6 0	1 17 7
	50	4 2 9	3 18 10	3 15 5	1 15 8
	55	5 0 0	4 16 0	4 12 5	1 13 9
	60	6 4 5	6 0 4	5 16 7	1 12 3
	65	7 10 4	7 5 10	7 1 9	1 11 0
	70	9 14 2	9 9 5	9 5 0	1 9 9
	75	12 15 3	12 10 7	12 6 3	1 8 7
	80	15 19 2	15 14 1	15 9 4	1 7 4
	85	20 18 11	20 13 6	20 8 7	
40	40	3 11 8	3 8 5	3 5 6	2 7 9
	45	3 17 3	3 13 8	3 10 6	2 5 4
	50	4 6 10	4 2 11	3 19 5	2 2 9
	55	5 3 11	4 19 10	4 16 2	2 0 3
	60	6 7 11	6 3 11	6 0 3	1 18 0
	65	7 13 9	7 9 2	7 5 1	1 16 3
	70	9 17 6	9 12 10	9 8 6	1 14 9
	75	12 18 9	12 14 0	12 9 9	1 13 6
	80	16 2 10	15 17 8	15 12 10	1 12 8
	85	21 2 6	20 17 2	20 12 3	

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if <i>A</i> survive <i>B</i> , inclusive of cost of insuring the chance of <i>A</i> dying before <i>B</i> , allowing interest at						Column 2. Deduction to be made for rate of insurance of £100, payable should <i>A</i> die before <i>B</i> .					
A.	B.	5 per cent.			6 per cent.			7 per cent.			Office.		
45	45	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
	50	4	2	1	3	18	4	3	14	11	2	14	4
	55	4	11	0	4	7	0	4	3	5	2	11	0
	60	5	7	5	5	3	2	4	19	4	2	7	6
	65	6	10	10	6	6	8	6	2	10	2	4	1
	70	7	15	11	7	11	3	7	7	1	2	1	0
	75	9	19	2	9	14	5	9	10	0	1	18	3
	80	13	0	0	12	15	4	12	11	0	1	16	0
85	16	3	10	15	18	8	15	14	0	1	14	5	
85	21	3	9	20	18	4	20	13	3				
50	50	4	19	1	4	14	9	4	10	10	3	4	10
	55	5	14	8	5	10	3	5	6	2	3	0	5
	60	6	17	3	6	12	11	6	8	11	2	15	11
	65	8	1	2	7	16	6	7	12	1	2	11	4
	70	10	3	6	9	18	7	9	14	0	2	6	9
	75	13	3	4	12	18	6	12	14	1	2	2	9
	80	16	6	2	16	0	11	15	16	1	1	19	2
	85	21	5	4	20	19	10	20	14	9			
55	55	6	9	6	6	5	0	6	0	11	4	3	2
	60	7	11	6	7	7	0	7	3	0	3	17	10
	65	8	14	4	8	9	7	8	5	2	3	12	6
	70	10	15	9	10	10	9	10	6	1	3	6	7
	75	13	15	2	13	10	2	13	5	7	3	1	4
	80	16	16	9	16	11	4	16	6	4	2	16	7
	85	21	15	0	21	9	5	21	4	3			
	60	60	8	13	0	8	8	7	8	4	7	5	9	2
65		9	14	10	9	10	1	9	5	10	5	3	0
70		11	15	8	11	10	8	11	6	1	4	16	6
75		14	15	0	14	10	1	14	5	7	4	10	7
80		17	16	3	17	10	10	17	5	10	4	5	7
85		22	14	8	22	8	11	22	3	7			

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1.			Column 2.
		Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if <i>A</i> survive <i>B</i> , inclusive of cost of insuring the chance of <i>A</i> dying before <i>B</i> , allowing interest at			Deduction to be made for rate of insurance of £100, payable should <i>A</i> die before <i>B</i> .
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
65	65	10 14 6	10 9 6	10 5 0	6 14 5
	70	12 13 4	12 8 2	12 3 5	6 5 3
	75	15 11 2	15 6 1	15 1 5	5 16 8
	80	18 10 2	18 4 7	17 19 4	5 8 5
	85	23 7 4	23 1 6	22 16 1	
70	70	14 10 1	14 4 7	13 19 6	8 19 11
	75	17 6 5	17 1 0	16 16 0	8 9 2
	80	20 2 3	19 16 4	19 10 10	7 18 6
	85	24 16 6	24 10 1	24 4 2	
75	75	20 2 11	19 17 6	19 12 6	
	80	22 16 9	22 10 10	22 5 3	
	85	27 9 11	27 3 5	26 17 3	
80	80	25 6 5	25 0 3	24 14 7	
	85	29 15 7	29 8 7	29 1 11	
85	85	33 19 1	33 11 5	33 4 2	

EXAMPLE:—*A* Life 35 should receive an Annuity due of £11. 2s. during his joint existence with another, 75, in consideration of a Post Obit of £100, supposing that the purchaser can Assure the life against 75 for a premium of £1. 8s. 7d. per cent. per annum, and is allowed to charge 6 per cent. interest.

Hence for a Post Obit of £14,000 an Annuity of £1554 should be given. (See case as stated in Article 3.)

As to Purchase by Present Values.

Art. 18.—If, instead of an *Annuity*, a *present* cash sum is to be paid to x , for a Post Obit of £1, or in purchase of a Contingent Reversionary Legacy of £1, dependent on x surviving y , the price should be,—

The present net value of £1 receivable at the death of the *first* of the two lives, less the Office *single* premium for the contingent Assurance of x dying before y ;
 $= (S_{x \cdot y})$ or net *single* premium at the rate of interest proposed to be received by the purchaser
 $- (S_{(1) \cdot y})$ at Office rate.

This result is equivalent to

$\pi_{x \cdot y} \cdot (a_{x \cdot y}$ taken at 5, 6, or 7 per cent. interest)
 $- p_{(1) \cdot y} \cdot (a_{x \cdot y}$ taken at 3 or 4 per cent. interest),

the reason being, that the purchaser is entitled to *deduct* from the *Present Value* of the total annual cost of the Post Obit (discounted at the rate of profit he is to make, viz. 5, 6, or 7 per cent.) the *Present Value* of the Office annual premium for the Contingent Assurance (discounted at the Office rate of interest, which would be 3 or 4 per cent.).

19.—Some writers recommend the use of the following formula (which gives a lesser present Value), viz. :—

$$1 - (d + p_{(1) \cdot y}) \cdot a_{x \cdot y}$$

in which $d = \frac{i}{1+i}$, or annual interest *due* of £1, and is usually taken at 5 per cent. for the advantage of the purchaser, whilst $a_{x \cdot y}$ is taken at a lower rate, that is, 3 per cent. The first two terms, $1 - d \cdot a_{x \cdot y}$, would coincide with $S_{x \cdot y}$ or $\pi_{x \cdot y} \cdot a_{x \cdot y}$, in the preceding article, if one *same* rate of interest were involved in both expressions.

20.—The introduction of two rates of interest in the first two terms of the above, viz. :—

$$1 - (d)_{5 \text{ per cent.}} \cdot (a_{x \cdot y})_{3 \text{ per cent.}}$$

as the value of a Reversion of £1, receivable at the death of the first of two lives (without Assurance), is scarcely equitable; for the Seller is made to allow the Purchaser, instead of d_5 , the supposed 5 per cent. yearly interest *due*, its present value discounted at 3 per cent., which is equivalent to allowing a much higher rate.

21.—A like form,

$$1 - (d)_{5 \text{ per cent.}} \cdot (a_x)_{3 \text{ per cent.}} \quad \dots \quad (1)$$

has also been strongly recommended by some Actuaries as a just and proper present value for a *Reversion of £1 depending on a single life* in place of the usual form

$$(S_x)_{5 \text{ per cent.}} \text{ or } 1 - (d)_{5 \text{ per cent.}} \cdot (a_x)_{5 \text{ per cent.}} \quad \dots \quad (2)$$

which is the expression for the single premium or present value of £1 at death of a life x discounted at 5 per cent.

The first form (1) differs from (2) by

$$(d)_{5 \text{ per cent.}} \cdot \{ (a_x)_{3 \text{ per cent.}} - (a_x)_{5 \text{ per cent.}} \},$$

or the difference between the present values of a Life Annuity $(d)_{5 \text{ per cent.}}$ at 3 and 5 per cent., but it cannot be supported by any satisfactory reasoning, and is objectionable from its giving *negative* results for ages under the zero point, corresponding to

$$1 - (d)_{5 \text{ per cent.}} \cdot (a_x)_{3 \text{ per cent.}} = 0,$$

$$\text{or} \quad (a_x)_{3 \text{ per cent.}} = \frac{1}{(d)_{5 \text{ per cent.}}} = (a_\infty)_{5 \text{ per cent.}}$$

that is, *when the Life Annuity due at 3 per cent. at age x = the value of a perpetuity due at 5 per cent. = 21.*

22.—Our own preference would, perhaps, be in favour of the formula S_x or

$$1 - d \cdot a_x$$

in which a higher rate of interest, such as 6 or 7 per cent., should be used throughout;—as we are prepared to recognize that a 5 per cent. discount by the formula S_x is not sufficiently advantageous to satisfy purchasers; considering they run the risk of locking up their money a long time before the Reversion falls in.

23.—But a much more satisfactory form may be deduced as follows (analogous to that in the preceding Articles on Post Obits), and is worthy of consideration, as it does not yet appear to have been noticed by other writers:—

Let $(\pi_x)_5$ = net annual premium or sinking fund to realize £1 at death of x at 5 per cent.;

then $(\pi_x)_5$ is the immediate Annuity *due* that might be granted to the Reversioner in purchase of a Reversion or Post Obit of £1, receivable at death of x , crediting the purchaser with 5 per cent. for the money he advances each year.

Now if the Reversion is to be bought by a *single* present sum, the *Present Value* of the Annuity $(\pi_x)_5$ should be given, which, by customary rule for purchasing *Life Annuities*,

$$= \frac{(\pi_x)_5}{d_5 + p_x} \dots \dots \dots (3)$$

*where p_x is Office premium to insure £1 at death of x .

24.—From the theoretical value of a Reversion, whatever formula be used, a deduction would have to be made, if Legacy or other duty is payable, or if legal or other expenses are anticipated to arise at the time of coming into the Reversion.

25.—For comparison, we place side by side these three forms and their numerical values at various ages, which we will designate by numbers (1), (2), (3). (See next page.) It will be seen that if a person aged 20 were entitled to a Reversion of £100, and the interest of money were 5 per cent., formula (2) would make its value £19·92, and the newly-suggested formula (3) £18·24; while, by the method now in frequent use, viz. (1), the party would not only have nothing to *receive*, but would actually be called upon to *pay* the Purchaser £8·01; thus making the possession of such Reversion a positive liability or debt. This absurd result, apart from any abstract argument, is conclusive proof that the formula from which it is obtained must be radically defective, and cannot be founded on any correct or equitable principle. The positive values given by this latter method at older ages also present equally strange results, for at age 40 it makes the value of £100 in reversion, at 5 per cent., worth only £13·64; whereas the discounted value of the same is £31·48, or, even at 7 per cent., £22·51.

* [The value of an Annuity due of £1 is a_n , which used to be taken formerly at 5 per cent., and is

$$= \frac{1}{d_5 + (\pi_x)_5} \dots \dots \dots (\text{see note p. 6})$$

The modern writers substitute, in the denominator, p_x , the Office annual premium for $(\pi_x)_5$, the net premium at 5 per cent.

It may be mentioned incidentally that the ages at which the present Value $\left(S_x \text{ or } \frac{\pi_x}{d + \pi_x}\right)$ of a Reversion of £1 is $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{f}$, correspond to the ages at which the annual premiums are equal to d , $\frac{d}{2}$, $\frac{d}{3}$, or $\frac{d}{f-1}$, respectively.

Thus P. V. of a Reversion of £100 is $\frac{100}{3}$, or £33. 6s. 8d. at age where Net annual premium is $\frac{d}{2}$ or £2·38 per cent. (See note to p. 5.)

In like manner Practical Estimates can be read off from an Office Table of Annual Life Assurance Premiums.]

COMPARATIVE TABLE of the Values of £1 in Reversion on a Single Life by various formulæ (1), (2), (3).

<p>3 PER CENT. By (2) or S_3 or $1-d_3(a_x)_3$ or $\frac{(\pi_x)_3}{d_3+(\pi_x)_3}$.</p> <p>5 PER CENT. By (1) or $1-d_5(a_x)_3$ or $\frac{(\pi_x)_3-(d_5-d_3)}{d_3+(\pi_x)_3}$.</p> <p>„ „ (2) or S_5 or $\frac{(\pi_x)_5}{d_5+(\pi_x)_5}$.</p> <p>„ „ (3) $\frac{(\pi_x)_5}{d_5+p_x}$. New Form recommended.</p> <p>6 PER CENT. By (2) or S_6 or $\frac{(\pi_x)_6}{d_6+(\pi_x)_6}$.</p> <p>„ „ (3) $\frac{(\pi_x)_6}{d_6+p_x}$. New Form recommended.</p> <p>7 PER CENT. By (2) or S_7 or $\frac{(\pi_x)_7}{d_7+(\pi_x)_7}$.</p>							
Age.	3 per cent.	5 per cent.			6 per cent.		7 per cent.
	(2) or S_x	(1) $1-d_5(a_x)_3$	(2) or S_x	(3) New Form.	(2) or S_x	(3) New Form.	(2) or S_x
20	·3390	—·0801	·1992	·1824	·1603	·1465	·1326
21	·3446		·2035		·1640		·1358
22	·3504		·2082		·1681		·1393
23	·3564		·2131		·1724		·1431
24	·3625		·2182		·1769		·1471
25	·3681		·2237		·1817		·1514
26	·3755		·2292		·1867		·1558
27	·3822		·2350		·1920		·1605
28	·3889		·2409		·1972		·1653
29	·3953		·2463		·2021		·1696
30	·4013	+·0215	·2513	·2289	·2064	·1863	·1733
31	·4073		·2563		·2108		·1771
32	·4136		·2616		·2155		·1812
33	·4201		·2673		·2205		·1856
34	·4269		·2733		·2259		·1905
35	·4340		·2797		·2317		·1956
36	·4412		·2863		·2378		·2011
37	·4487		·2932		·2441		·2068
38	·4562		·3002		·2506		·2128
39	·4639		·3075		·2574		·2189
40	·4716	·1364	·3148	·2833	·2640	·2352	·2251
41	·4789		·3217		·2704		·2308
42	·4862		·3285		·2767		·2365
43	·4935		·3354		·2829		·2421
44	·5011		·3426		·2896		·2481

Age	3 per cent.	5 per cent.			6 per cent.		7 per cent.
	(2) or S_x	(1) $1 - d_5(a_x)_{\frac{1}{2}}$	(2) or S_x	(3) New Form.	(2) or S_x	(3) New Form.	(2) or S_x
45	·5089		·3501		·2965		·2544
46	·5169		·3581		·3040		·2613
47	·5254		·3666		·3120		·2687
48	·5344		·3759		·3209		·2770
49	·5441		·3861		·3308		·2864
50	·5543	·2716	·3971	·3520	·3416	·2994	·2968
51	·5651		·4090		·3535		·3083
52	·5760		·4212		·3656		·3202
53	·5870		·4337		·3780		·3324
54	·5981		·4465		·3909		·3451
55	·6095		·4597		·4043		·3584
56	·6210		·4732		·4181		·3723
57	·6326		·4871		·4324		·3867
58	·6441		·5010		·4469		·4012
59	·6551		·5143		·4606		·4151
60	·6653	·4530	·5267	·4601	·4734	·4098	·4280
61	·6744		·5375		·4844		·4392
62	·6833		·5482		·4955		·4503
63	·6922		·5591		·5068		·4617
64	·7016		·5707		·5187		·4739
65	·7111		·5826		·5313		·4866
66	·7210		·5951		·5444		·5001
67	·7312		·6082		·5583		·5145
68	·7417		·6219		·5729		·5297
69	·7525		·6361		·5881		·5456
70	·7634	·6133	·6507	·5603	·6039	·5158	·5623
71	·7746		·6659		·6205		·5800
72	·7852		·6804		·6364		·5969
73	·7948		·6936		·6507		·6122
74	·8033		·7052		·6635		·6259
75	·8103		·7148		·6740		·6370
76	·8172		·7242		·6842		·6479
77	·8235		·7329		·6938		·6581
78	·8300		·7418		·7035		·6685
79	·8371		·7519		·7147		·6805
80	·8437	·7446	·7612	·6479	·7250	·6136	·6917

NOTE.—The following are the Constants occurring in the above formulæ:—

$$d_3 = \cdot0291.$$

$$d_5 = \cdot0476.$$

$$d_6 = \cdot0566.$$

$$d_7 = \cdot0654.$$

The Variables may be found as follows:—

p_x in Table 1, page 51, for Office Annual Premiums.

(π_x) in the following Table, Art. 26, page 16.

Art. 26.

TABLE of the Value of π_x , the Annual Premium (due), to assure £100 (or Sinking Fund due to accumulate £100) by the end of the year of death of a Person aged x , at 5 per cent. interest, Carlisle Law, Net.

x	π_x			x	π_x		
	£.	s.	d.		£.	s.	d.
20	1	3	9	51	3	5	11
21	1	4	5	52	3	9	5
22	1	5	1	53	3	13	0
23	1	5	10	54	3	16	11
24	1	6	8	55	4	1	1
25	1	7	6	56	4	5	7
26	1	8	4	57	4	10	6
27	1	9	3	58	4	15	9
28	1	10	3	59	5	0	10
29	1	11	2	60	5	6	0
30	1	12	0	61	5	10	8
31	1	12	10	62	5	15	7
32	1	13	9	63	6	1	0
33	1	14	9	64	6	6	9
34	1	15	10	65	6	13	1
35	1	17	0	66	7	0	1
36	1	18	3	67	7	8	1
37	1	19	6	68	7	16	8
38	2	0	11	69	8	6	7
39	2	2	4	70	8	17	8
40	2	3	9	71	9	10	1
41	2	5	2	72	10	2	10
42	2	6	7	73	10	15	7
43	2	8	1	74	11	7	11
44	2	9	8	75	11	18	9
45	2	11	10	76	12	10	1
46	2	13	2	77	13	1	4
47	2	15	2	78	13	13	8
48	2	17	5	79	14	8	8
49	2	19	11	80	15	4	0
50	3	2	9				

NOTE.—[The Equivalents of π_x are—

$$\pi_x = \frac{1}{A_x} = \frac{S_x}{a_x} = \frac{1}{a_x} - \frac{1}{a_{\infty}} = \frac{S_x}{a_{\infty}(1-S_x)} = \frac{1}{a_x} - d.$$

(See Appendix, page 4, 'Treatise on Copyholds.')

Hence π_x at other rates of interest than 5 per cent. can be readily calculated from a Life Annuity, or an S_x Table.]

FRIENDLY SOCIETIES' INSTITUTE,

4, TRAFALGAR SQUARE, LONDON.

(Established A.D. 1851.)

Removed from 23, Pall Mall.

President.

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(1850 and 1851) of the Institute of Actuaries of Great Britain and Ireland.*

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ANTHONY PECK, Esq., M.A. | WM. CURTIS OTTER, Esq.

Emigration and Land Department.

WILLIAM BRIDGES, Esq.

Corresponding Secretary.—EDWARD WILLIAM BRABROOK, Esq.

NOTICE.—For the convenience of Managers and Promoters of Friendly and Benefit Societies, arrangements have been made that *from and after the 1st of January, 1857*, information may be obtained or *Conferences* had, from 4 to 7 o'clock on Mondays and Fridays, and from 4 to 5 o'clock on Tuesdays, Wednesdays, and Thursdays.

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1857.

FRIENDLY SOCIETIES' INSTITUTE.

(Established A.D. 1851.)

1.—ALTHOUGH very many plans have from time to time been devised, by the ingenious and philanthropic, with the view of ameliorating the condition of the working classes, there are none better calculated, *per se*, to accomplish this object, than those on which “FRIENDLY SOCIETIES”* are based. The benefits offered are such as are peculiarly suitable to the artizan and mechanic.

2.—Yet among the thousands of Industrial Societies which have been formed in this country, few, strange to say, have reached maturity, and even the stability of those which appear to have taken root is very questionable. To what cause then, it may be reasonably asked, is their general failure attributable? It arises mainly from two circumstances; first, the inaccurate data on which they are commonly based, and, secondly, the absence of that competent practical supervision, which special experience alone can furnish. What is meant by special experience may be

* [Under this generic term are included, for convenience, every species of Industrial Association, whether they be termed “Building Societies,” “Freehold Land Societies,” “Benefit Emigration Societies,” “Friendly or Sick Benefit Societies,” “Reversionary Interest, Discount, and Loan Societies,” “Savings’ Banks,” “Copyhold Enfranchisement Societies,” “Tontine Societies,” “Industrial Partnership, or Trade Societies,” “Annuity Societies,” &c. &c.]

explained by stating, that half the mischief, caused to Industrial Societies, has arisen from reports on their affairs, and certificates of their rules and tables, having been given by men of too limited experience to be entitled to confidence. The peculiar complexity and variety of the operations of such societies render it a business in itself; and it is only by constant comparison of the experience of one Society with another, and by a constant succession of cases of a like character, that sound opinions can be obtained. It is to concentrate this experience, that the "FRIENDLY SOCIETIES' INSTITUTE," was established; and in order to carry out this object, an efficient staff of skilled calculators has been retained at considerable expense, to assist in conducting the necessary investigations.

3.—The principal advantages offered by the "FRIENDLY SOCIETIES' INSTITUTE" will be found comprised under the following heads :—

- 1.—RULES are furnished for the formation of new Societies, or the Rules of existing Associations remodelled.
- 2.—TABLES are provided, based on accurate data, and adapted to the peculiar requirements of, or objects aimed at by each Society.
- 3.—INFORMATION, ENCOURAGEMENT, and ASSISTANCE are afforded to the Managers and Members of all Associations connected with the Industrial Classes.

4.—The Institute embraces in its operations every kind of Society capable of being formed under the Friendly Societies', Building Societies', or other Industrial Acts. For example—

1. *Friendly Societies.*
2. *Freehold Land Societies.*
3. *Benefit Emigration Societies.*
4. *Building Societies and Suburban Village Associations.*

5. *Trust and Agency Societies.*
6. *Reversionary Interest, Discount, and Loan Societies.*
7. *Savings' Bank Audits.*
8. *Copyhold Enfranchisement Societies.*
9. *Tontine Societies.*
10. *Industrial Partnership or Trade Societies.*
11. *Annuity Societies, &c., &c.*

5.—An ARBITRATION DEPARTMENT has also been formed, having for its object the equitable adjustment of disputes.

6.—The income of Friendly Societies and Associations of a kindred character is usually not sufficient to admit of the payment of the large adequate fee which would have to be made in *isolated* cases, for the advice of persons of the requisite standing and experience; but in this Institute, a scale of fees, (estimated on the large number of cases which centralization produces, and such as will fall within the means of every Society,) has been determined upon, not much exceeding the Expenses of clerks, calculations, postages, &c. This scale varies according to the number of members, as is mentioned on page 11. Every particular will be furnished upon application to the Secretary of the Department, to which the Society concerned would belong, specifying whether the information is desired—

For a set of Rules and Tables, or

For Estimates of, and Reports on, the financial condition of a Society.

For model Forms of Account Books, and instruction in the art of keeping them.

For Auditing the accounts of a Society.

For Arbitration on matters in dispute.


For Calculations and information or advice on general cases, &c., &c.

7.—The advantage need not be dwelt upon that would arise to a Society from using a set of Rules, so framed that, while in due conformity with the Act, they shall be in accordance with those means best calculated to develop its operations, and to facilitate the accomplishment of the particular objects in view. Hundreds of Societies have Rules, which, although possessing the sanction of the Registrar as to their conformity with the *Law*, are yet defective in many of those points, that tend to simplify and assist the working of the machinery. *The utmost care is therefore taken that the Rules, furnished by the Institute, shall not only fall within the strict letter of the law, but be properly adapted to its peculiar circumstances and requirements.

8.—Important, however, as a set of good Rules undoubtedly is to the well-doing of a Society, a set of correct Tables is equally so. A Society without accurately constructed Tables is in a position not unlike that of a ship without proper ballast. No sooner does motion ensue, than the risk of turning over supervenes, and the greater the impetus, the more imminent the danger. Now it is a matter of unfortunate notoriety, that the rates of contributions of many societies, are not only *inadequate in amount*, but, in Friendly Societies particularly, are very often *inequitable in principle*. For

* [Much misunderstanding appears to exist as to the cause of the failure of Friendly Societies, but the experience of the Institute tends rather to the conclusion that fundamental errors in the Rules, and in the principles of Management have just as much to be avoided as unsound Tables ;—in other words, that rates based upon scientific data are of no use unless continuous attention be paid to practical details. Consequently, where the promoters of Provident Societies desire it, after the rules and tables have been settled, one of the officials of this Institute will attend to assist in its establishment.

Similar visits will be made periodically, such as once or twice a year, to watch over the operations, if the Committee of Management subsequently wish it. The expense can be paid by annual fee, depending upon the magnitude of the Society.



while, on the one hand, they appear to have been assessed with little or no consideration to the risks incurred, and simply with a view to captivate by their cheapness, on the other hand, the same premium has been exacted from the young in the vigour of early manhood, as from those more advanced in life. Now what the proper rate of contributions should be, is not so easily determinable as many persons imagine. It is an exceedingly difficult problem, which those only who have had long experience can be expected to solve with accuracy.* One element of difficulty is contained in the fact, that the circumstances of Friendly Societies vary almost as much as their localities and names. They are, indeed, so dissimilar, that a table of rates which may be perfectly safe for one, may be the reverse for another. Frequently also, there are no means of insuring that a rate, which in the earlier years of a Society's existence might be judiciously adopted, will not, as practical occurrences subsequently affect it, become entirely insufficient.


9.—But although good Rules and correct Tables constitute most important elements towards success, it must not be forgotten that they form the machinery alone of the undertaking, and that, how perfect soever it may be, if not skilfully handled, the gear is soon deranged. *Efficiency of management* is, therefore, equally essential. If the workman is bad, his possession of good tools will render the work but little better. It is, therefore, most important that those, who have the conduct of the affairs of a Society, should possess the necessary qualifications for the purpose, and that, when they do not possess them, they should have access to a repository like the "FRIENDLY SOCIETIES' INSTITUTE," where the information required may

* *Vide* "Division I, or, A Treatise on Life Assurance Societies, Friendly Societies, and Savings' Banks," by ARTHUR SCRATCHLEY, M.A., F.R.A.S. Ninth Edition.

be obtained. The imperfect manner in which the Books of societies are often kept, and the number of errors found in them, are in themselves very baneful. Again, the necessity of a *prompt investment of the funds* as they are received is frequently lost sight of, a circumstance of material moment, for the Tables themselves, if properly constructed, are based upon the presumption, that a certain rate of *Interest* is continually being realised upon the subscriptions, and if not realised, the calculations will be rendered of no use, and the expectations of the members disappointed.

10.—The foregoing observations, it is presumed, will sufficiently show the design and character of the “FRIENDLY SOCIETIES’ INSTITUTE,” and demonstrate the necessity for, and utility of, an institution of the kind. There can be no doubt, that if the various Friendly and Industrial Associations, which are so widely disseminated throughout the United Kingdom, combine together towards the support of this establishment, the object of which is to place them on a safe and sure footing, an union for such a purpose must tend both to their collective and individual benefit. Much valuable statistical information, of a reliable character, has been, and will continually be thereby obtained, the results of which are made accessory to the general good. In a word, the “FRIENDLY SOCIETIES’ INSTITUTE” is established to provide a readily available and inexpensive medium by which those who are interested in existing Industrial and kindred Associations, or in the formation of new ones, may obtain sound advice and valuable information on all matters connected with their constitution, rates, management, and financial or legal position.

11.—In order that the Funds of a Society may not be charged with the expense of subscribing for advice from the Friendly Societies’ Institute, the *Trustees, Honorary Members, and M.P.’s of the district*, should be invited to contribute; and,



judging from the numbers, who have already cheerfully hastened to secure for their Societies these benefits, there is no doubt but that others, if applied to, would readily *concur in the movement.

12.—*As there are usually a great number of cases under consideration, it is requested, in order to preserve uniformity and to save time, that Applicants will furnish the particulars of their Societies on the forms and schedules of the Institute, which can be obtained from the Corresponding Secretary; and that cases be sent in, where practicable, between the 1st November and the 1st August following.*

* [“The reader is probably aware that upwards of *Twenty thousand Friendly Societies* are in existence in this kingdom. That the far greater number of them were not formed upon scientific principles, and are not conducted by persons having that peculiar intelligence which is necessary for the successful management of mutual assurance business, and that in every part of the kingdom such societies are continually breaking up from deficiency of funds, great numbers of the male paupers now in district Unions having been made paupers thereby,—as they will tell the reader upon inquiry.

A great accumulation of knowledge has of late years been got together by scientific persons upon Contingencies, in which Friendly Societies are mainly concerned, and Calculations in accordance with such fresh knowledge have been made by most eminent Actuaries. Such eminent persons continue to apply their minds to such subjects, and are from time to time imparting much useful knowledge to the public in reference to the same. Parliament has been much occupied in this matter, and is so at the present time; and valuable Reports have been made by Committees of the House of Lords and House of Commons on Friendly Society affairs. Hence many influential and benevolent persons in different parts of the kingdom have, (under great difficulty, for want of some competent Central authority to refer to), endeavoured to form Friendly Societies upon improved principles within the last twenty or thirty years, and

13.—Examinations are held, in January and July, of Accountants and others, who are candidates for the appointments of Managers or Secretaries of Provident Societies ; and it is in contemplation to establish preparatory courses of Lectures on the subjects of examination. *A Register of qualified Persons is also kept.*

others are ready to do so ; but many, under present circumstances, refrain through apprehension of the personal trouble and responsibility in which they may be involved by such a movement on their part, without any support in perpetuity to be depended upon.”—*Extract from Article on the importance of a Friendly Societies' Institute.*]

[“ The result of the plan of a Friendly Societies' Institute, would, it is supposed, be this :—

1.—Friendly Societies would be formed upon a sound basis, and kept upon it.

2.—Friendly Societies would be established and conducted upon a more uniform plan than at present.

3.—Uniformity of plan throughout many societies, would tend to reduce the expenses of each society. The cost of forms, books, &c., &c., would become much less.

4.—Errors, frauds, &c., &c., would very soon be detected, stopped from making farther progress, and rectified.

5.—The experiences of many societies would be annually collected ; the sickness of one society would be compared with the sickness of others ; any immoderate degree of sickness would thus be immediately inquired into, agents put on their guard, &c., &c.

6.—Improvements, introduced into any one Society, would be immediately communicated to all.

7.—The continued existence, or successful course of any Society, would no longer depend upon an individual, as is oftentimes now the case. The Central Institute would stand in his place.

8.—Country gentlemen, the clergy, and others, would not, as at present, hesitate about forming Societies ; knowing that the Central Institute would be an effective means of helping them, and keeping them in the sound road at their death or departure.

9.—Valuable advice would be obtainable by Societies from time to time in regard to the investment of money.

(Over.)



10.—Care would be taken that periodical valuations of every Society's Liabilities should be made, so that, if required, precaution might be adopted in due time.

11.—Means would be at hand for transacting the London general and *law* business of Country societies.

12.—A strong Institute would be able to defend the interests of Friendly Societies, and to extend them throughout this kingdom, and in the colonies ; and being thus associated for Benevolent and Christian purposes, would greatly tend to diminish industrial misery."—*Parliamentary Paper on the importance of the Friendly Societies' Institute.*]

PARISH FRIENDLY SOCIETIES.

It has been suggested by a Barrister of great experience in Friendly and other Industrial Societies, Mr. William Tidd Pratt, of the Inner Temple, Barrister-at-Law, (to whom the Institute is indebted for a careful revision of its draft rules), that a clause should be inserted in any future Friendly Societies' Act, authorizing the *Trustees of the poor* in the various parishes of the United Kingdom to defray the expenses of formation and management of one soundly-constituted Friendly Society in their districts, provided they have a right of supervision or participation in its management.

Such an allowance towards the expenses would remove one great difficulty that the Institute has at present to contend with, in settling the rates of Friendly Societies, as there are no means of determining, *a priori*, what will be the proportion which the future expenses of a Society will bear to the Premiums contributed by the members ; and a theoretical margin based on the experience of one Society is found not always to be a guide to the probable expenditure of another.

As the funds of a *Parish Friendly Society* would have to be applied solely in payment of the benefits assured by it, its progress could be marked from year to year with greater facility ; whilst a positive diminution could be made in the rates charged to the members, as from the practical impossibility of safe competition, the Society would be likely to absorb the members of the other Societies in the neighbourhood, more particularly those which are conducted at public houses, or are under doubtful management. Parish Societies would, by such an arrangement, tend to realise the conceptions of those sound economists, who consider that the ultimate diminution of the poor's-rate depends on the increase of provident habits among the working classes, especially when they make provisions for the unavoidable necessities of their old age.

[*Communications from the Clergy and others are invited on this subject.*]

REGULATIONS

AS TO THE OBTAINING OF CONTINUOUS ADVICE BY A SOCIETY.

1.—The Society must first have its affairs submitted to the Institute for Examination and Report, for which Fees will be payable varying with the number of members.

2.—Any Society, of which the affairs have been examined, may afterwards, for an Annual Fee, varying according to the number of members, have an annual Report on its affairs, and would be entitled at a fee of a quarter-of-a-guinea per calculation or opinion, to advice on tabular calculations, or on points of practice, and on the mode of keeping accounts, &c., &c.; the Annual Fee not to be paid out of the Funds of the Society, but by the Honorary Members or Trustees, to whom application should be made.

The Fee for preparing and certifying a set of Rules and Tables for a new Friendly Society, varies according to the greater or less amount of alterations in the Model Rules or Tables of the Institute desired.

. In order to enable the Friendly Societies' Institute to continue to be the centre of information upon Friendly and other Industrial Societies, you will much oblige by forwarding to the Secretaries in London a copy of the Rules and Prospectus of your Society, with any particulars of its operation and experience since its establishment you may think would be useful.

Donations to the Library of Books and Reports, or of any Publications on Industrial Subjects, will be thankfully accepted.

A BENEVOLENT FUND is in course of formation to provide Pensions for decayed Managers of Industrial Associations, and Donations will be received by the President for that object.

Post Office Orders and Drafts to be made payable to the order of the President.

*The following Divisions of Mr. Scratchley's "TREATISE
ON ASSOCIATIONS FOR PROVIDENT INVESTMENT" may
be had separately :—*

Division I. *Treatise on LIFE ASSURANCE SOCIETIES, FRIENDLY
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